

ITEMS OF INTEREST.

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ORIGINAL COMMUNICATIONS.

MALPOSITIONS AND PARTIAL ERUPTIONS OF THE THIRD MOLAR.

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In presenting this subject, it is not my intention to discuss the causes which lead to the abnormal positions, which the third molar sometimes occupies, but to call attention to these positions, with some pathological conditions, which may arise as a consequence from these malpositions and from their partial eruptions.

Following this, I will offer a few suggestions for the relief and cure of the conditions. The upper third molar is not so prolific of evil results when misplaced as is the lower, neither is it so often partially erupted. Before studying the subject, I was of the opinion that the lower third molar, if not the upper as well, was generally out of alignment with the teeth anterior to it; but, on a more careful examination of jaws, I have come to the conclusion that as a rule the third molar is not generally out of line; indeed, I am of the opinion that any of the six anterior teeth are more commonly out of position than are these.

In proportion as the jaws are short and the teeth large, so are the probabilities increased for the third molar being misplaced or partially erupted. But there are malpositioned third molars that are in no wise dependent on a crowded arch. Take, for instance, those of a fully developed upper maxilla, which occupy a horizontal position in the jaw, with their occlusal surface presenting toward the cheek, also those of the lower jaw which present their occlusal surface toward the tongue, or are their full width outside the arch on the buccal side of the jaw. The positions which the teeth occupy when out of alignment, I find do not vary materially in different mouths.

For instance, on the upper jaw we find the most common abnormality in those in which the third molar is placed on the buccal side of the arch, or toward the cheek.

Generally this malposition is not a cause of disturbance. When the tooth is thus placed, it may vary from the normal to an angle of 45°, or with its occlusal surface presenting directly toward the cheek.

If the tooth is but a few degrees out of line, no harm is caused, but if it more nearly approaches the extreme limit, then the cusps may irritate the cheek and produce serious results, unless the cause be removed; and the best means of removing the cause in such a case is to remove the tooth, as it can never become a useful organ.

Even when these teeth are not so much out of place, if they be decayed, which is not uncommon, their position favoring the lodgment and retention of the elemental causes of decay, the rough edges of the enamel will often cause an irritation of the mucous membrane. In such cases the treatment indicated is either filling or extraction of the tooth; its value, and the practicability of its restoration being the determining factors. Another position occupied by the upper third molar, which I have often found productive of serious inconvenience to the possessor, is when it becomes much elongated from the fact that it has no antagonist.

It sometimes happens in extreme cases of elongation, that the gum on the lower jaw is injured by occlusion, and an inflammation is the result. This elongation is often productive of another equally serious condition. It often occurs when this condition is found that the tooth is forced backward by a partial occlusion with the second molar, and by the wedging in of food (which latter is facilitated by the difference in the length of the second and third molars). The space thus gained invites microorganisms, and affords an admirable incubating place for them.

Decay is almost certain to occur as a result in the distal surface of the second molar, and may also occur in the mesial surface of the third molar; the peridental membrane of the third molar becomes irritated, and probably in time inflamed, making the tooth a constant source of annoyance. This tooth, having no use in the economy, should be extracted.

Occasionally a third upper molar presents its occlusal surface decidedly backward, or distally, causing a V-shaped opening with its base downward. This, as in the condition of the elongated tooth, affords opportunity for the lodgment of food, and invites decay.

Very rarely, if at all, does the upper third molar present linguinally, and not often does it happen that serious inflammations accompany its eruption. The lower third molar when misplaced or tardy in eruption, is much more frequently the cause of serious

results than the upper. To the anatomical difference in the two jaws, and to gravitation, may this be attributed. Malpositions on the lower jaw are not so productive of disturbances as are tardy and partial eruptions. The more common malpositions occupied by the lower third molar, are buccally and lingually to the arch, varying from the normal to the full width of the tooth.

If it present lingually, in a marked degree, the lingual cusps may impinge on the tongue to such an extent as to produce in time an abrasion, which, if not cured, may be the cause of serious results. Such teeth should either be extracted or their cusps smoothed, so as to prevent abrasions.

When these teeth present buccally or outside the arch, they are sometimes a cause of irritation to the mucous membrane of the cheek, the cheek folding over them and forming a pocket, in which particles of food and other matter find ready lodgment. The trouble caused by such teeth is best cured by their extraction, as they are valueless in this position.

Not an uncommon position occupied by the lower third molar, which is often productive of serious conditions, is when the tooth presents with its anterior cusps against either the cervical portion of the distal surface of the second molar, or against the lower third of the distal root of this tooth.

This position has been known to cause absorption of the root of the second molar, resulting in serious neuralgic pain. It also affords a deep pocket for the lodgment of food and microörganisms, which causes injury to the crown of this and the tooth adjoining. The extraction of this tooth is often an exceedingly difficult operation. To facilitate its removal it may be desirable to cut a section from the mesio-occlusal surface, as it is often so lodged below the swell of the coronal portion of the second molar that otherwise it is almost impossible of extraction without injury to the latter tooth.

The various malpositions of the lower third molar are each productive of more or less disturbance, but we are much more frequently called on for the treatment of that class of inflammations caused by the tardy and partial eruptions of this tooth. It may be that there is room on account of the shortness of the jaw, for perhaps only two-thirds of the tooth's width, between the ascending portion of the ramus and the second molar, the remaining one-third being imbedded in this bone.

Fortunately such cases are not common, as they may be productive of much inflammation resulting in osteitis and necrosis of the jaw.

In some mouths there is a superabundance of soft tissue

overlaying the anterior portion of the ramus. In such cases there may not be sufficient room for a tooth between the soft tissue and the second molar—perhaps only the anterior cusps may be exposed.

The pressure from above on this soft tissue bringing it forcibly in contact with the occlusal surface of the tooth, together with the lodgment of irritants in the pocket between the tooth and the gum very generally suffices to cause inflammations, which may result in necrosis of the jaw, or ulcerations finding openings in the face or elsewhere; such teeth should be removed.

Many lower third molars cause trouble from the fact that they do not fully erupt; the anterior cusps present, and then from some cause, but not from lack of room, the tooth does not rise up farther. Its antagonist may be fully erupted and sufficiently elongated to touch, or nearly touch, the gum over the lower tooth; mastication bruises the gum, and this, with the accumulation of septic matter under the operculum, causes very painful and sometimes dangerous conditions. The inflammation may subside, only to return at a subsequent time. In these cases, if I value the tooth, I consider it good practice to cut away the operculum of gum, but I never do this till the inflammation is under control. To control this, I wash out the pus and other matter contained in the pocket with pyrozone, using either Dunn's or some other suitable syringe. If there is much pain, I take the crystals of muriate cocain, and grind them in 95 per cent solution carbolic acid, and apply a small quantity of this under the operculum. This generally relieves the pain. If it does not, I use hot water externally, and, if necessary, anodynes internally.

In addition to this, if there be occlusion of the upper tooth and the operculum of gum, I separate the upper from the lower teeth sufficiently to prevent their striking. This may be done by passing a ligature between the teeth, and with it tying a piece of cotton dipped in chloro-percha to the teeth; this is done on both sides of the jaw, thereby preventing occlusion. Gutta-percha may be molded to the teeth and secured in a similar manner, or modeling composition serves a good purpose. In some instances I have simply dried a few of the teeth on each side of the mouth, and flowed on their occlusal surfaces quick setting phosphate of zinc. A better but more difficult method is to take an impression of two or more teeth, make from this casts of Mellotte's metal; on this swage caps to fit the teeth, and cement them in place. The operculum of gum may be removed by the use of operculum forceps, curved scissors, bistoury, or galvano-cautery. I have never been able to use, except in a few cases, the operculum forceps with any

degree of satisfaction. Curved scissors, by the aid of toothed forceps, or tenaculum do very well, and in the absence of the scissors the bistoury, with these other aids, may be employed. But galvano-cautery does the work much more satisfactorily, the operation is bloodless, and no more painful than when other means are employed. Following the removal, antiseptics are used till the parts are healed.

As a cure for those cases where there is lack of room between the tooth and soft parts covering the ramus, or between the ramus and the tooth itself, some of our text-books teach that the second molar should be extracted, thereby permitting the third molar to move forward and gain sufficient room. This may be expedient in some cases, but if it were possible I should prefer the removal of the third molar.

CAUSES OF CARIES.*

Dr. A. H. Peck, Chicago.

First, the predisposing causes of decay are faulty formations of the teeth. We shall consider this not only as regards the malformations of the teeth, but also with reference to the character of the constituent element of the tooth itself. The variations in form from the normal which most favor the inception of decay, occur as pits and grooves, especially on the occlusal surfaces of bicuspids and molars, the buccal surfaces of molars, and the lingual surfaces of the upper anterior teeth.

These defects afford lodgment for particles of food, till the acid which actually dissolves the lime salts from the tooth structure is evolved through the process of fermentation. The fungi once implanted in these depressions, and the corrosive action once begun, the waste of tissue progresses little by little, till finally entrance to the dentine is accomplished.

If in the constitutional elements of the tooth, the organic matter is in excess over that of the normal, it must necessarily follow that the substance of the tooth generally is softer than it otherwise would be. In consequence of well-known physical laws, the corrosive agent will attack the substance of such a tooth much more readily, and the destructive process will be carried on at a much more rapid pace than in connection with a tooth of normal density—hence the inducement held out to the acid to inaugurate its work of devastation, and the means afforded for its rapid progress through the faulty make-up of the tooth itself.

* Read before the Illinois Society.

The manner in which the teeth are proximated has much to do in predisposing them to caries, and especially if the proximating surfaces are broad and flat, and also if they do not at any point touch each other, other things being equal, favor the lodgment of the food and fungi till fermentation shall have produced the substance necessary for the beginning of caries. Again, in the proximal spaces when the gum festoons have been partially or completely destroyed, thus affording abundant space for the lodgment, retention and evolution of those necessary elements to the inception of decay, also any malposition of the teeth in the arch of a nature to favor such lodgments, predispose them to decay.

Hereditary influences are exceedingly important as predisposing the teeth to caries, and must not be overlooked. That peculiarities, varying from the normal, in the formation of the teeth are directly transmissible from the parent to the child is generally accepted as correct by the best authorities, and especially malformations in the form of the teeth which are very important factors in predisposing them to decay.

Morbid and unnatural conditions of the saliva and other fluids of the mouth, and especially when acid in reaction, as they are frequently found to be, and in many cases to a considerable degree, must be regarded as affording favorable environments for the development and propagation of these elements necessary to the inception and progress of the carious process. And this brings us up to the consideration of the exciting or the actual cause of decay of the teeth. And the substance which produces this diseased condition of the teeth is lactic acid, as per the results of the experimentations of Dr. Miller.

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It is impossible for true caries to have a beginning without fermentation. In connection with caries the elements essential to this process are sugar and favorable microorganisms. Much of the sugar assimilated by the bacteria is taken directly in the mouth, but probably the larger quantity is changed into such by the action of the ptyalin of the saliva on the starchy substances. However, the bacteria seem to possess the power, in the absence of the ptyalin, by virtue of a substance it gives off, to transform starch into its appropriate food. Precisely in the same way as we observe the process of nutrition to be carried on in the human system, and, as in connection with all organized life everywhere, do we find it to be in connection with these bacteria. Food taken in the mouth, masticated and saturated with saliva, passed in the stomach, are there acted on by the gastric and intestinal juices, and prepared for assimilation.

The nutritive portions, or those parts of the various kinds of food which can be utilized in building up the constituent parts of the body, are passed through their respective channels in the blood. The waste, or those parts which can not be utilized, are cast off mainly as urea and uric acid. So, in connection with the bacteria of decay, their particular food, sugar, is taken in by them, and the nutritive portions immediately turned to the uses of their bodies, that they may have a future existence, prosper, and be multiplied; that portion which they can not so use being cast off in the form of lactic acid; and this is the substance that is responsible, directly, for the terrible destruction of the human teeth by this carious process. This it is that actually attacks the constituent elements of the tooth, and, molecule by molecule, dissolves them away.

It is needless to say that the origin of all decays of the teeth is at the outer surface of that part of the tooth where the cavity is found. This lactic acid having been formed as described, and under favorable circumstances, attacks the basis substance—the salts of calcium—of the enamel.

The manner in which the carious process effects an opening through the enamel tissue is essentially as follows: First, the enamel prisms are held together by a substance commonly spoken of as the interprismatic-cement-substance. This constituent part of the enamel, in its general texture, is considerably softer, or at least more soluble than is the substance constituting the enamel prism itself. Hence, it most naturally follows that the acid will attack this substance and dissolve it away more readily than it does the substance of the prism. I feel safe in saying that observations generally regarding the clinical history of caries of the enamel substantiate these statements. The cementing substance is dissolved away little by little, molecule by molecule, and in this way the corrosive action of the acid slowly but surely progresses till the entire thickness of the enamel has been traversed. Thus the substance which binds the enamel prisms in such close proximity, the one to the other, being destroyed, leaves the latter free to separate and fall apart. However, the prisms themselves do not by any means entirely escape the corrosive effects of the acid.

It will almost invariably be observed, on examination with the microscope, that the ends of these prisms have been rounded—some but slightly, others to a greater extent. And not infrequently it will be observed that their substance has been wasted by the process throughout their entire length, in some cases very considerably, in others but slightly. But rarely ever is it the case that they are entirely destroyed during the penetration of the tissue.

These openings through the enamel are often exceedingly small, indeed so minute as scarcely to be discernible by the naked eye. On reaching the surface of the dentine, because of the lateral ramifications of the branching endings of the dentinal tubules, and also because of the existence of numerous minute interglobular spaces just between the dentine and enamel tissues, the carious process is induced to spread laterally to some extent, before it will penetrate far in the substance of the dentine. As the process progresses within the dentine, and the spread in the lateral direction under the enamel becomes greater it must necessarily follow that the enamel tissue will be attacked on its inner surface. Thus from this point on the carious process becomes in a sense a two-fold one, prosecuting its deleterious work inwardly toward the pulp chamber of the tooth, and outwardly toward its circumference. In this way the enamel for a considerable distance in all directions from the original opening will have become so weakened as to be unable to further withstand the pressure brought to bear on it by the force of mastication or otherwise, and breaks down. Thus is the external opening in the carious cavity suddenly and materially enlarged, leaving the margins rough and uneven.

In the dentine, the destructive process is observed to be carried on substantially as follows: The acid on reaching the surface of the dentine extends in a lateral direction to some extent before penetrating to any considerable depth in the substance of the tissue. If the structure of the tooth is normal, this lateral extension at first will not be so great as in teeth whose composition does not contain the usual amount of inorganic matter. And more especially in those teeth where the union of the dentine with enamel is imperfect, and more extensive interglobular spaces exist so that the immediate and more rapid lateral spread of the acid is thus facilitated. Usually the field of tissue invaded by the carious process is in form not unlike that of a cone with its "apex pointing toward the pulp, and its base at the inner surface of the enamel." And especially is this form the rule in teeth of normal structure. Otherwise a great deviation from this form will be observed.

The carious process will spread over a much greater area of tissue before penetrating deeply, thus resulting in the formation of a cavity broad and flat.

The fungi insinuate themselves at once in these natural openings—the interglobular spaces—and also virtually grow in the center of the tubules; the acid is constantly being produced, and penetrates the tissue to a considerable extent in advance of the penetration of the fungi. Indeed, the substance of the tubules becomes completely saturated, and the acid passes beyond their

limits in the intertubular cement substance, which latter being softer or more soluble than the matrix substance of the tubule itself, is completely dissolved away, thus affording opportunity for the resultance of one of the chief characteristics of true caries of the dentine, namely, the swollen or enlarged condition in which the tubules are so often found to be. In the course of time the walls of the tubules themselves will have been destroyed, thus resulting in the coalescence of two or even more of the tubules in one.

Thus in this progressive manner is the substance of the dentine destroyed by the carious process. It must be kept constantly in mind that in no instance, except, possibly, the two cases cited above, do the fungi of decay penetrate in advance of the corrosive effect of the acid. The latter goes before, destroys the tissue, effects an opening, and the fungi follow after insinuating themselves in the openings thus formed. In this way a constant production of all the necessary elements to the furtherance of the carious process is kept up.

ELECTRICITY AND TOOTH FILLING.*

Dr. Swain : I am very glad my friend Col. Koch is here to-day, as I am going to rob him of a little gratification which I suppose he would have if I assumed I got what I am going to say now, "out of my own head." The colonel and another neighbor were spending an evening at my house not long ago, and I will say that the other neighbor is an electrician, a gentleman who stands second, if not the equal of Edison. My impression is that he is a man of better knowledge and more modesty ; that he has never been in the hands of a syndicate, consequently he has not been advertised to the extent that Mr. Edison has, though I am a great admirer of Edison. He is a great man. The matter came up somehow and we got to talking shop, and the question of electric action between gold and amalgam fillings was broached. I suppose Dr. Koch and myself were really pumping him to see if we could not learn something. He made some suggestions that cleared up some things in regard to this question. He said at once that there is an electric or galvanic action between two fillings of different materials when one stands in the proximal surface of one tooth, and the other opposite, a little way apart. He says the moisture in the tubuli is a good conductor. The current with the two teeth would be down through the tooth, through the soft tissues and in the

* Illinois Transactions.

other tooth, then the space being filled between the two fillings with a slightly acidulated secretion would go from one filling to the other, consequently there would be a circuit between these two teeth through the soft tissues below, and between the fillings above, and the result would be, as is always the case in electroplating, that from one pole of the battery the metal would be broken down —torn away. That would be universally the better metal, and the same condition would exist if both teeth had been filled with gold, one with gold that was alloyed, and the other with gold not alloyed. The same condition would exist between two kinds of amalgam used in opposite teeth, one poorer than the other, and especially if part of the alloy was zinc. Then he told us that this whole thing could be obviated, if it were desirable, by boring a hole in each of the fillings and passing a wire from one to the other. This would stop the entire action. You have then just what we all have when we repair a gold filling with amalgam around its cervical, buccal or lingual surface where decay has taken place. When you repair it with amalgam you have got the two metals in close contact. You have destroyed the current. This was a new idea to me.

Dr. C. R. E. Koch: The gentleman referred to was very particular to inquire into conditions; the condition of the tooth when filled. Whether it was absolutely a dry substance or whether there was a physiological or anatomical moisture there, and he simply laid stress on the fact that electrolysis would start, not from the acid fluids between the two metals of different potency, but the current would start from the vital fluid which underlies the baser metal, and therefore would disintegrate it similar to the zinc of a battery, which, of course, would then make an opening for the action of the bacteria to destroy the contiguous tooth structure. The question arose as to a remedy. Dr. Swain has stated one remedy. He said that if the tooth was absolutely dry, if there were no vital fluid there, we would have no such condition; and to create a condition of dryness, was necessary as a preventive. If you can insert a coating of some indestructible substance between the filling and the tooth surface, you will very largely diminish the potency of the electric current, if not destroy it altogether. The suggestion was made of making a lining of gutta-percha. Speaking about the wire connection recalls to my mind an operation I saw, said to have been of Dr. Daboll's, which was an artificial incisor, anchored to a gold axis in proximal cavities of two adjoining teeth. One end was imbedded in a gold filling, and the other in an amalgam filling. The bar evidently broke up the electric current, and the case was found four or five years afterward without a particle of disintegration of the tooth filling, and the

artificial tooth secure and firm. The idea of electrolysis and its force in tooth disintegration is of course not new. I think the statement drawn from our neighbor comes more closely to giving a practical demonstration and practical reasoning than we ever had before. To some one who is versed in electric science it would make an excellent starting point, enabling him perhaps to absolutely prove this.

AMALGAM FILLINGS.

In Illinois Society.

Edmund Noyes.

Dr. Gilmer : One of the principal reasons why I think amalgam fillings so frequently fail is because less care is taken in the preparation of cavities for their reception. If the margins are prepared in such a way as to give an attenuated edge to the amalgam, it will chip off and break away. The pocket-book of the patient must be frequently taken in consideration. There are persons for whom we can make good amalgam fillings, but who are physically unable to withstand the strain necessary for the introduction and completion of good gold fillings. I have patients for whom I can do no operation on the teeth in a perfect manner. For such patients I can do a better service by using plastic filling material.

Dr. W. V. B. Ames : I would like to ask Dr. Gilmer if I understood him to say that the material about the gold filling, rather than the amalgam, would be destroyed.

Dr. Gilmer : It is my experience that the enamel is destroyed about the gold, and not about the amalgam. I have seen no perceptible change in either the gold or the amalgam of which the filling was composed.

Dr. J. W. Cormany : It has done me good to-day to listen to the remarks on the subject of amalgam, from the simple fact, some years ago there was such a wet blanket thrown over it. In such bad odor was it, that I remember at one of our meetings, held in Rock Island, a good brother got up and said he had seen a mouth that had so many amalgam fillings in the teeth that he could take his finger and rub it along the gums and the mercury would drop out like shot down a tower. [Laughter.] Since that time I have been as good a friend of amalgam as I possibly could ; it has done me a great deal of service. There is one prominent member of the dental profession whom I have heard make the remark twice—and he did it in such a way that it really made me feel as though I wish he had not said it at all—namely, that he had never put in

an amalgam filling in his life. I will say for him that he has lost a grand opportunity for doing good. There are many people, with amalgam fillings doing good service. They are not to be compared with anything except a gold crown that is to take the place of the broken tooth that was filled up with amalgam years ago.

Dr. Freeman: I heard the remarks just quoted by Dr. Corrmany made by a dentist at the Rock Island meeting, years ago. I also remember another member of our profession—both of them are gone now—who said, at one time, in my hearing, that he had never put in but two or three amalgam fillings in his life. Of course, that was before it was as reputable as it is now to put in such fillings, and I suppose it was justifiable not to profess to know much about it. When I came to Chicago any young man would have lost his standing in the profession if he had made it known that he was an amalgam filler; and I did not resort to its use very much, because I considered it very likely that I should lose my own reputation if I continued it. I have since used more amalgam than some practitioners, perhaps, but my favorite has always been gold.

If amalgam fillings are made with the greatest care they are not the work of a few minutes, and there is just as good opportunity for the display of art and taste in making and finishing them as in making gold fillings of the same form and general characteristics. So far as artistic qualities in the operator are concerned, there is about as good opportunity for the display of them in the use of amalgam as gold. So far as the question of skill is concerned, the fact that you work three hours on an operation instead of one does not necessarily imply that you exercise any higher degree of skill. The fact is, the proper handling and use of amalgam requires a wider range of knowledge and skill and experience than the corresponding handling of gold, if you want to get the best results that the material will give you.

GOOD BUSINESS MAXIMS.—Carefully examine every detail of your business. Be prompt in everything. Take time to consider and then decide positively. Dare to go forward. Bear troubles patiently. Be brave in the struggle of life. Maintain your integrity as a sacred thing. Never tell business lies. Make no useless acquaintances. Never appear something more than you are. Pay your debts promptly. Shun strong liquor. Employ your time well. Do not reckon on chance. Be polite to everybody. Never be discouraged. Then work hard, and you will succeed.

Notes and Queries.

CAVITIES WITH WEAK WALLS.

All of us have observed that cavities with weak walls, having little or no supporting dentine, are liable to fracture under the force of mastication long before leakage could induce recurrence of decay. This danger may be reduced to the minimum by shortening the weaker wall, as in the case of a crown cavity in a molar, extending near to the junction of another surface. Very liberal grinding down may be indulged in, and instead of great strain against a weak, long wall, we will have a short wall as a base to resist the crushing strain exerted on the filling.

The buccal and lingual angles of the cusps, when frail, may be cut away and strengthened on the same principle—adequate anchorage of course to be secured in the most available portions of the tooth, according to the circumstances.

Good preparation of cavities is just as essential to success with amalgam as with any other material. The ideal cavity form for amalgam would be box-like, with slight divergence toward the axial wall, for retention.

Too much anchorage, or undercut, may be as faulty as too little—tending to leakage and liability to fracture of the walls. Such cavities may sometimes be changed from irregular to simple form, by lining them with cement, and finishing with alloy.

T. W. Prichett, in Ill. So.

SOME INTERESTING SUGGESTIONS.

If you are using an old style Snow & Lewis Automatic Plugger with a smooth finger-grip, you can improve it wonderfully by fastening around it three or four rings made of fine wire, using a very small quantity of muriate of zinc as a flux, and just enough soft solder to hold the rings in place.

The most satisfactory surface I have found from which to pick up pieces of amalgam for filling is the ground surface of a piece of plate glass.

There are rare cases in which the shape or size of an excavator will suit better than any amalgam carrier you may have for carrying a piece of amalgam to the cavity, and you can pick up pieces of amalgam with the smooth surface of an excavator or flat burnisher by gently pressing them on it with a sliding motion. I find the easiest way to extract a badly broken-down superior molar, is to divide it on a line between the palatine and the buccal roots, using large-sized spear pointed and fissure drills in the

engine, and then insert one beak of the forceps in the place drilled, and remove the roots separately.

After making the wax base-plate as smooth as possible by quick puffs of flame with the blow-pipe, you can, after it cools, give it a fine polish by stroking it gently with the finger.

The most simple and at the same time most convenient way to keep rubber from entering the joints of gum sections is to jar the filled flask before putting on the top, by lifting it and setting it down on the work bench hard enough to cause the joints to fill with plaster of Paris from the outside. If they have not entirely filled, put a little thin plaster of Paris on the inside of the joints immediately after scalding the wax from the pins while the case is still wet.

I recently heard of a new tooth powder. A young school-marm said she used baking powder, and thought Royal cleaned her teeth better than any other kind she had tried.

I was told by a man that his wife had gone to Columbus and had her "holler teeth" extracted with "bottleized air."

D. Scott Thomas, Somerset, O.

Dr. J. W. O'Bryan, says: Many people take a commercial view of dentistry, and think that our fees should depend on the amount of gold or amalgam used in a filling. How many of us there are who, if asked as to the probable cost of a filling, would say, "Well, that depends on the amount of gold required to fill it." In this way five dollars may be charged for a certain filling, while a smaller one, which, owing to the position of the cavity, may require more time, skill and expenditure of nervous energy, may be inserted for perhaps three dollars; at least the patient will expect it if the impression is given that fees are based on the amount of material used. Such a practice does not tend to create due appreciation of dental services. If the dentist does not show that he values the scientific learning and skill, which requires years of study and practice to acquire, the patient certainly will not do so. This commercial notion is responsible for that well-known and equally abhorred nuisance, who goes from one office to another getting prices, and quoting some "Cheap John" up the street. When such a person finally decides to have his work done, he usually suggests that you might clean his teeth in the bargain, as he is doubtless accustomed to ask a clothing dealer to "throw in" a pair of suspenders and neck-tie with a suit of clothes. The same man would no more think of going from one physician to another to see who would cure his rheumatism the cheapest.

REFITTING PLATES.

Instead of sawing out the palate of the plate I simply scrape it thoroughly to cause the new rubber to adhere firmly to the old plate. I have also removed the old plate entirely from the teeth after placing the case in an articulator and building plaster on the opposite half of articulator till the grinding surfaces of the teeth are slightly imbedded. The teeth can easily be placed in their imprints in the plaster, and of course they are in exactly the same position as before removing them from the old plate. The new model on opposite half of articulator will be in correct position to retain the former articulation of teeth. After waxing teeth to model a trial in the mouth is best. This gives an entire new plate on the old teeth and no danger of blackened joints, as they can be cleaned while removed from old plate. These methods are but little more work than repairing a case, while the result is equal to a new denture for the patient. I find that maroon-rubber is best in this work as it flows easiest and adheres best to an old plate.

Many patients insist on a denture soon after their teeth are extracted. In a mouth the denture may be very loose, when it can be refitted in the above manner. In three months the operation may again be needed. I have repeated it three or four times on the same plate. Lower, as well as upper, dentures may be served in this way.

J. E. Davis, B.S., D.D.S.

TO MAKE PLATES OF UNIFORM THICKNESS.

The first essential is a base plate of the right thickness and perfectly smooth, and that will retain its thickness and smoothness, and then see that no wax is added to it. Wax base plates will not answer these requirements as they are too easily marred. Old modeling compound is just right; works as easily as wax, and retains the shape of the model and will not bend out of shape. While soft, press it out to the required thickness ($\frac{1}{2}$ inch) between sheets of glass that have been slightly soaped to prevent sticking. A cutter made of tin, like a cake-cutter, is very handy for cutting out the forms. Mine is copper, home-made, with the edge filed sharp, and is $2\frac{1}{2}$ inches from front to back, and 3 inches across the back. If an air chamber is to be used the lead form should be put on the model before the base plate, and to prevent the edge of the metal from cutting through the base plate it should have its edge beveled down thin, or a line of stiff wax run around the edge beveling to the model. The plate will be as smooth as the glass, and of uniform thickness and easily finished.

D. W. Barker.

A FEW MAXIMS FOR BEGINNERS.

Dr. Sigel Roush, Washington, D. C.

- Wait.
- Read.
- Be content.
- Keep your head.
- Be business-like.
- Be willing to learn.
- Compel recognition.
- Don't talk too much.
- Excel in little things.
- Surmount difficulties.
- Work while you wait.
- Don't expect too much.
- Use more soap than gold.
- Don't talk shop at dinner.
- In short, use your talents.
- Don't become discouraged.
- Don't gossip with patients.
- Cultivate worthy friendships.
- Don't exhibit specimen work.
- Join some worthy organization.
- Don't be afraid to lose a patient.
- Be independent, but not haughty.
- Stick to facts about your practice.
- Don't hang around the street door.
- Permit no loafing about your office.
- Don't be afraid to say "I don't know."
- Don't charge half prices "as special favors."
- Demand reasonable prices, and stick to them.
- "Honesty is the best policy" applies to dentists.
- To older competitors be respectful, but not cringing.
- Don't close your office to go to the game of baseball.
- Don't unnecessarily mention one patient's name to another.
- Include a manicure set and a shoe-brush in your dental outfit.
- Don't criticise another dentist. Such remarks act upon the principle of the boomerang.
- Don't smoke in your office during office hours, or anywhere else. Leave tobacco to lower occupations.
- Display the same taste and care in selecting your office furniture as if you were furnishing your parlor.
- Don't resort to any ridiculous ruse to give the impression you are rushed. The public know all beginners must begin.

ELECTRIC INFLUENCES ON FILLINGS.

In Illinois Society.

Dr. T. L. Gilmer.

We have two teeth, one filled with amalgam and the other with gold. As soon as there is contact between the two metals a current of electricity is established which passes from the baser to the nobler metal. To generate a current of electricity a circuit must be established. In the Crofoot battery there is suspended in a solution of sulfate of copper, zinc and copper; these are connected by the fluid and by a wire extending from the copper to the zinc. Of course, a current is produced in the solution which passes from the zinc toward the copper. There is deposited from this solution metallic copper on the copper plate. If two teeth closely proximating be filled, one with gold and the other with amalgam, when contact between the two is established a circuit is completed. We have through the roots and the vital tissues of the jaw the ground connection, and all that remains to establish a current is some suitable connection with the two metals.

This gives a very similar condition to that observed in the Crofoot cell. The current passes from the amalgam to the gold, carrying with it débris and microörganisms which are deposited on the gold, and the tooth filled with it. The food particles thus lodged afford the best opportunity for the multiplication and growth of the organisms, and as a natural result there is decomposition of the lime salts at the margins of the gold filling, while the amalgam will remain comparatively free from decay. I do not believe that the electric current injures the tooth or gold in it at all.

POTASSIUM-SODIUM FOR ROOT TREATMENT.

In Illinois Society.

Dr. Ames: As a decidedly novel method of cleansing root canals must be mentioned the use of the liquid alloy of potassium and sodium introduced by Dr. Emil Schreier, of Vienna. The experience of some leads them to suspect that we are constantly in danger of exciting violent peridental inflammation about the roots of teeth in the canals of which this is used. An inflammation has been excited about the teeth so treated, which seemed to indicate that a caustic action had extended beyond the foramen, and while suppuration does not ensue the symptoms are very violent for several days.

Dr. Grafton Munroe: While at the World's Columbian Dental Congress I had the good fortune to see Dr. Schreier operate with

his sodium-potassium preparation, though it was not in a root that was in the mouth; at the same time I was imbued with the idea that it would be a good plan to try it. I came home with the determination and set to work, and have used two vials of it in my practice, and I find it is of great assistance in treating putrid root canals. Where I use it, I open the cavity leading to the canal as thoroughly as I can, and clean out as much of the bulbous portion of the nerve as is possible, and then having opened up the root canal well, so that the gases can escape as soon as there is combustion; it makes it simpler and there is less danger of inflammation. Dr. Ames spoke of having periosteal inflammation in some cases. I must confess I am a new worker with it, but I have used it very cautiously. When I get down deep in the root, I first drop in it a little peroxid of hydrogen, then partly dry out some of that with cotton and introduce my sodium-potassium again, and in that way prevent danger of going through. I have found great benefit from it.

Dr. W. F. Green: I have used the sodium-potassium preparation for a year. I have used it in about one hundred cases, and with the exception of two or three cases in badly-decayed roots—more properly speaking, "snags"—I have had no irritation. I have been in a position to see a number of the teeth so treated several times since, and they are in a perfect condition. I think much depends on the manner in which it is introduced in the canal. As Dr. Munroe says, if the canal is obstructed in the least and combustion takes place you must have an escape somehow.

The treatment of pyorrhea has been greatly improved by the use of antiseptic remedies, and all the advance that has been made has been due to antiseptic medication. Little improvement has taken place in late years in the surgical treatment of this disease, for the thorough removal of deposits was recommended in former years as now, and we have got little further; but we have made vast improvements in the therapeutical treatment and the application of proper remedies. We may safely say that we are now on the road to the successful treatment of this malady, though we have not yet attained the goal. When we shall have reached the precision with which we now treat septic pulp-canals and abscesses, in the treatment of pyorrhea, we will have attained another great step in the forward march of progress in dental practice. But it yet defies us, and we cannot claim that we have made great gains in the direction of overcoming the disease in the last decade.

A. H. Thompson.

CURRENT THOUGHTS.

THE HUMAN TONGUE.

C. R. Taylor, Streator, Illinois.

The human tongue in its uses and functions is the most comprehensive organ of the entire body. With the exception of the heart it is the most muscular organ of the system. In prenatal life, as well as after birth, its form modifies the shape and contour of the jaws and thus affects the arrangement of the teeth.

The size, shape and color of the tongue in health, is largely dependent on the systemic tendency and temperament of the individual.

After birth it is first used, with the aid of the lips, as a prehensile organ to seize and hold in sucking the breast of the maternal fountain of life. It is the organ of speech, singing, whistling and crying, and special organ of taste and touch as well as it is of general sensibility. It is the only part of the body having any two of the special senses situated in it, *i. e.*, taste and touch.

Not only that, but it is the only organ of the human body under voluntary control at birth. There is a very popular tradition that one-half of the human family lose that control in a few years after birth.

The tongue is the principal tuning organ of speech and song in the oral cavity. The sense of taste, if not of touch, of the tongue, are the only ones of special sense that are developed at birth. The eye cannot really see, nor the ear hear, nor the nose smell, at birth.

In eating, the tongue performs a very important office. It changes the food from one part of the mouth to another. It turns and mixes the food with the saliva; also assists in holding the food in position for mastication and aids in separating and sorting out unsuitable particles in the food by its sense of taste and touch. When the food is properly masticated and mixed thoroughly with saliva, the tongue finally forms the food into a bolus and forces it into the upper part of the throat, in the first act of swallowing. In fact, there can be no swallowing without the tongue making the initiatory movement.

The tongue is capable of being attenuated or broadened, contracted or extended; can be thrown partially out of the mouth or withdrawn to the back part of the mouth into the upper part of the throat. It is the most flexible of any of the different parts of

the body and can be moved with the greatest rapidity. It has a considerable muscular strength. Usually it is under the control of its owner, but, as every dentist knows, there are times when his patients seem to be unable to place the tongue in any particular part of the mouth when requested to do so. At other times the tongue seems to move involuntarily to all parts of the mouth but the one part desired, and frequently it requires a considerable force to restrain its encroachments.

If the tongue is wounded or abraded by the rough edges of a broken tooth or any denticulated substance in the mouth, it will involuntarily seek to retouch the jagged surface till it becomes impossible for the person suffering from the excoriation to keep the tongue from rewounding itself.

The sense of touch is called the "mother of all senses," and in no part of the human body is it so exquisitely developed as in the tongue.

My observation has been that this sense of touch is so keen and highly developed in the tongue that it has the power of magnifying this tactile sensation to a remarkable degree.

One is often entertained by patients in their attempts to describe this peculiarity of the tongue: "Why, that feels as big as a bushel basket;" "You could turn a yoke of oxen around where that came out;" "That space is large enough to sail a steam yacht in," etc. Nothing is smooth till the tongue says it is.

The sense of taste is a compound sense, and rises with the advance of organization, reaching its most perfect development in man. This sense of gustation depends for its perfection not only on the nerves of taste situated in the tongue and mouth, but also on the sense of smell situated in the nose. Such articles of food as tea, coffee and wines, also freshly cooked meats to a great extent, are dependent on smell for the sensation called taste. For if from mechanical obstruction or disease the olfactory membrane is separated from the oral cavity during the act of deglutition, the peculiar flavor of the food is lost.

Salt, quinin and sugar, and some acids, have no smell, and are only distinguishable by the sensation of sweet, bitter, sour and salt. The different sensations of taste seem to be located in different parts of the tongue. That of sweet and sour seem to be the most discernible in the front part of the tongue, while that of bitter is not distinguishable till the bitter elements reach the back part of the tongue.

The sense of taste in sickness is sometimes lost, and at other times substances circulating in the blood distress the patient by their constant presence. In diabetes there is a continued sweetish

taste. Morphia, and in jaundice biliary products, cause bitter sensations. All articles having taste must be capable of solution. Yet some soluble substances have no taste.

To the learned diagnostician the tongue is the bulletin board of the whole system. There is no disease but placards the tongue.

Dr. F. L. Gerald, in *Herald of Health*, says: "The tongue is of great diagnostic value, and by close observation it will give us valuable aid in determining the character of disease. The tongue tells us of the condition of the blood, the condition of the nervous system, and the functions of nutrition and excretion. As these are important to know, in fact just what we want to know, we will make the tongue talk as plainly as possible."

We find the expression of disease in its form, its condition of dryness or moisture, its coatings and color. The dental practitioner should be able to read what the tongue has to tell, for often patients need the physician rather than the services of the dentist, and it is the duty of the dentist to so direct his patients.

There are but few morbid conditions of the tongue in infancy and early childhood. At birth the tongue is sometimes found to be divided in two parts through the median line, and even three lobed tongues have been recorded. A few cases are recorded where the tongue was entirely absent at birth, and strange as it may seem, the power of speech was acquired and the sense of taste was present, and in cases of total removal of the tongue by surgical ablation both the sense of gustation and the power of speech were fully regained. Any or all the tissues of the tongue, mucous membrane, muscles, glands, ducts, blood-vessels, lymphatics, or nerves, are subject to morbid changes. And so we find the tongue the seat of numerous diseases. Ranging from a simple pimple to the most dangerous and worst of all complaints—cancer.

The diseases of the tongue most frequently met with in a dental practice are paralysis caused by exposed pulps and inflammatory conditions in consequence of dead pulps of teeth, the tongue suffering from nervous reflex action.

Paralysis is easily told if the muscles of the face do not indicate it, by asking the patient to extend the tongue.

In paralysis the tongue will be drawn to one side of the median line of the face, opposite to the side affected.

Children as well as grown persons suffer very much from denuded spots or patches of the tongue, caused from a dyspeptic condition of the alimentary system. Often the tongue is badly injured in the extracting of teeth by careless operators grasping the side of the tongue with the forceps; especially is this liable to take place in hasty extracting when nitrous oxid is used.

Unguarded operations with the dental engine, with disks and burs wound the tongue painfully and seriously. The tongue is frequently injured by illy adapted partial dentures of artificial teeth and jagged, broken, natural teeth. Such conditions are favorable to cancerous growths.

Excessive smoking of tobacco has a similar effect o the tongue. Often the excoriation and irritation from ragged-edged teeth produce all the symptoms of cancer, which subside as soon as the irritating cause is removed. The tongue is often caught between the teeth and severely lacerated by persons suffering from epileptic convulsions. Frequently small children, when playing, fall and strike their chins with the tongue between the teeth and nearly sever that organ.

From injury and disease the tongue sometimes becomes attached to the cheek or floor of the mouth, causing interference and difficulty in speech, mastication and deglutition.

There is a chronic inflammatory condition of the tongue found in the mouths of persons suffering from syphilitic taint, resembling cancer very much. Syphilitic ulceration can generally be diagnosed from cancerous tubercle by the irregular and elongated form of the syphilitic ulcer and slowness of its growth. The syphilitic ulcer is usually situated in the substance of the tongue, while the cancerous growth is on the edge or tip of the tongue, and its growth is very rapid.

When the frenum of the tongue is too broad or attached too near the end of the tongue, so that it cannot be extended beyond the edges of the incisor teeth, the person is said to be tongue-tied. This malformation not only interferes with the nursing of the child, but in later life prevents perfect articulation in speech. Occasionally there is an absence of the frenum or maloperation in severing the frenum too completely. When such is the case, there is prolapsus of the tongue, and the life of the person is constantly put in jeopardy by the tongue falling back in the fauces and causing death from suffocation. Macroglossia or hypertrophy of the tongue is a disease of that organ which occurs in early life as well as in the adult age.

It is supposed to be caused from enlarged blood-vessels and obstructed lymphatics. As the tumor increases the tongue is forced forward, and by gravitation, downward, till in its worst stages it separates the lower jaw at the symphysis, and also forces the anterior teeth to assume a horizontal position. It is a most distressing condition. The irritation produced causes a constant flow of saliva from the mouth, leaving the upper surface of the tongue dry, cracked and sore.

While speech is not so much impeded, the patient finds it difficult to take food in the mouth; and also either to masticate or to swallow the same. The tongue plays no small part in correcting irregularities of the teeth in the lower jaw by its constant outward pressure.

It also assists in producing irregularities and malpositions of the teeth of the worst types and most difficult forms to correct.

Such types and forms are produced from the improper habits of tongue and thumb sucking. Great watchfulness and care is required in all acute inflammatory conditions of the tongue on account of the danger of asphyxia from sudden and extensive swelling of the tongue.

In syncope or suffocation, from whatever cause, the tongue should always have the closest attention. For the relaxed condition of that organ at such times permits it to so lodge in the throat as to prevent easy access of air in the lungs.

Dental Review.

SCIENCE AND DENTISTRY.

Dr. A. H. Thompson, Topeka.

It is interesting to note the relationship of science to practice in some of the most marked recent advances. True progress involves the application of exact knowledge to the uses of life. Accidental discoveries which have benefited mankind have been made since the emergence from man's previous animal existence and he became capable of the exercise of his distinguishing human faculty—reason. Such discoveries and inventions, be they ever so useful, have been of no extended benefit till illuminated by scientific knowledge of the principles which lie back of them and make them possible. With the attainment of this knowledge, discoveries and inventions become clothed with illimitable possibilities. This knowledge has made the great discoveries of the ages the blessings of mankind—printing, steam, electricity, antisepsis. These and more have been made the servants and the saviors of men. Empirical practice is always limited in its application, and the good that great discoveries and inventions may accomplish is limited, because we are hampered by lack of knowledge of their underlying principles.

In the progress of the development of dental practice this is quite apparent. A useful invention or discovery made in an empirical way is practiced in a limited field for many years, with the result of circumscribing its benefits, till some bold investigator, dissatisfied with the mere results without knowing how they are

produced, proceeds to experiment, and discovers the underlying laws which govern its action. Then it is found that the invention, so useful in one field, can be made of far more general application, and further experimentation leads to the verification of those expectations and extended usefulness.

It is too true that our art, on which so much of our reputation and usefulness depends, has outstripped our science, and that this art is largely the result of empirical practice. Take the one item of crown and bridge-work, which, while protested against by many as unscientific and pernicious, and it is so in regard to its worst features, yet holds its own and grows because it is practicable and useful. It is unscientific in theory, but useful in practice, and has sprung from pure empiricism. But the other great item of our recent progress, antiseptic medication, has proceeded from pure science, the reasoning from cause to effect, the producing of results from the prediction of discoveries. That is pure science—the predication of practical effects from a basis of scientific fact. The mechanical treatment of caries long preceded our knowledge of the real nature of the disease, and the cure attained was the result of pure empiricism and experimentation. The treatment was scientific, but it remained for later discoveries to reveal the scientific basis. So with many of our most noted achievements in the conservation of the teeth or their prosthetic restoration—we attained a success that was practical and useful, but the scientific basis long remained unknown.

The new practice is more scientific. In all its main features it proceeds from a scientific basis. It does not experiment in a blind way, but reasons from cause to effect, and applies the remedies or appliances that a discriminating judgment suggests as the proper agent for securing a desired result. That is science. The empiric would try what was at hand without regard to its qualities or what he desired to accomplish, and failing in one, try another. The success of modern practice depends more on scientific judgment than that of the past, for all of the ordinary possibilities are exhausted. We have gained all the victories within easy reach, and to attain more conquests and extend our field of usefulness we must search deeper and define closer to be enabled to wrest yet other secrets from Nature. But that is the motive and the mission of modern dentistry. We must do yet greater and better things, but to do them we must carry our investigations in new and untried fields and far deeper in the old ones, that we may bring more things to light that will help us to grow scientifically and practically, and thereby increase our capacity for service to humanity.

PRACTICAL POINTS.*

Dr. Wm. H. Steele, Forest City, Iowa.

Without attempting a finished paper, I have chosen to present a few rambling thoughts on different subjects as they occurred to me; trusting, that if there is nothing good in the thoughts I present, they may at least be the means of calling forth valuable ideas from others from which some good may result.

HINT ON REPAIRING RUBBER PLATES.—It is often a difficult matter to obtain a perfect cast of broken plates, especially is this the case if the plate is a lower one, with a good deal of undercut. I get good models of such plates by casting in sections, and removing one section at a time. The model can be made in two, three, or even more sections if desired; bearing in mind that they must be cast in such a way as to avoid the undercut, and allow of easy removal. Suppose you have a lower plate, broken between the central incisors; take two pieces of base plate wax, warm them, and place them in each section of the plate at the first bicuspid; to form a dam for the plaster to flow against. Now oil lightly, mix the plaster, and pour each section; when the plaster is sufficiently hard, remove the wax; bore holes or cut grooves in the end of each plaster section (to serve as guides), varnish and oil them; place the broken parts of the plate together in proper position, and pour the middle section of the cast. When set, remove the sections, place together in their relative positions; lock in place with plaster, and proceed as usual with the repair.

TO MEND A BROKEN CABLE.—A quick and strong way to repair a broken engine cable is to bend a piece of brass in the shape of a tube, of proper size, to fit snugly over the broken ends of the cable. Thoroughly clean the broken ends of all grease and dirt; slip them in the tube; put on a little soldering acid; lay a piece of jewelers' soft solder along the open joint of the tube; hold the tube over a spirit lamp, till the solder melts and flows in it, and around the broken cable. Trim off all surplus solder, round off all sharp corners, and, if the work has been properly done, this will be the strongest part of the cable.

CONVENIENT FINISHING STRIPS.—The thin pieces of cloth that come packed between the sheets of pink rubber make excellent finishing strips; the sheet can be torn in strips of the desired width as needed, and used for smoothing off amalgam fillings, cleaning between teeth, etc. Being thin and strong, it also makes a nice vehicle for carrying polishing powders when finishing gold

* Read before the Iowa State Dental Society, May, 1895.

or other fillings; brush a little glycerin on the strip, and sprinkle with emery, buckhorn-crocus or cuttle-fish powder.

A COVER FOR THE WORK-TABLE.—The composition rubber strips used by stamp-makers, for covering the wood face of the mount before putting on the die, make the very best kind of pads for the laboratory finishing table. It looks neat, makes the work of filling and scraping almost noiseless; finished work will not get marred or scratched by coming in contact with it; the piece of work is not slipping around on the bench, but is easily held in place; gold trimmings and filings are readily seen on it, and easily removed. This material comes in rolls of different widths, sells at sixty cents a pound, and can be got at any of the rubber dealers.

RETAINING MEDICINES IN CAVITIES.—This is an easy operation in any of the simple cavities, but when applying the arsenical preparations in large proximate cavities, it is often quite difficult to seal it in properly. If the space between the cavity and the adjoining tooth is not too great, a piece of softened gutta-percha can be formed and fitted in the space, so as to close the entire cavity except a small opening in the crown, through which the application can be made and sealed in. If the tooth is too isolated to treat in this manner, a shell crown can be formed of thin sheet gutta-percha slipped over the tooth, and a hole made through it, for introducing the application.

ABOUT ENGINE BURS.—Many members of our profession are in the habit of buying their supplies and instruments in too small quantities, which is a very uneconomical way of conducting business. Take, for instance, the item of engine burs; they are usually bought of the nearest dental depot, in small lots of one or two dozen at a time, at a cost of about \$2.25 per dozen; while, if ordered in gross lots, a first-class bur can be had at a big reduction per gross. When ordering from the manufacturer, be particular in specifying exactly what is wanted, keep a copy of the order; when the goods come, if not according to order, or up to standard in quality, return the defective ones, and you will probably have no further trouble in getting what you order. After receiving a nice stock of burs, the next thing is to take proper care of them; they should be kept clean, free from rust, and out of the sunlight. They should be put away in cases so arranged that selections can be made without having to handle over the whole stock.

When operating, a bur should never be laid aside till it is cleaned; this will prevent the lips from rusting, which will soon destroy the bur. At the trifling cost of each, there is no excuse for torturing a patient by using dull burs; and that obtundent has never been discovered that can make excavating painless with a

slowly revolved, poorly made dull bur, under pressure, in a flooded cavity. While on the other hand, the majority of teeth can be excavated with but little or no pain, by using good, sharp burs, run at a high speed, handled with a light intermittent touch, the cavity being kept absolutely dry.

CRACKED PLATES.—We often have trouble with upper plates cracking, or breaking entirely in two, along the median line. When this accident occurs, the plate is sent to the dentist who usually repairs the break, and returns the plate, without seeing the patient, only to have it sent back in a few months (or go to some other dentist), broken again in the same place. Some practitioners try to remedy the difficulty by making the plate thicker, or, by putting in a metal stiffener, which only bridges over the trouble a little longer, as none of these methods reach the cause. To more fully give my idea of this trouble, and the proper remedy, I will cite a case in practice. Mr. M—— came in our office early one morning last fall, and removing the cover from a little pasteboard box that he carried, he took therefrom the broken sections of one of these old chronics and placed them carefully in my hand, remarking : "I have had that plate mended twice a year for the past five years, and I have got so accustomed to it that I expect to pay the semi-annual dental assessment with as much regularity as I do my taxes." I inquired if the plate was a good fit, and he replied : "Oh, yes; it is a nice fit, and very comfortable; I want you to be real careful, and not alter the shape in repairing." Noticing that he had a bump of firmness on top of his head, about the size of a goose egg, I knew that there would be little use to argue the case with him.

I took an impression of his mouth, made a cast, put the old plate on, and showed it to him; he had no further objections to offer against our making a new plate. The old one did not touch the alveolar ridge on the plaster cast anywhere, and in some places cleared it nearly the sixteenth of an inch. This is very often the cause of these breaks, and it is a useless waste of time, material and reputation to repair them. When a break of this kind is sent to our office for repair, I am always reminded of the street urchin's reply to the poet Pope.

Alexander Pope, who was a deformed cripple, had a habit, when irritated, of saying : "God mend me." One day, when passing along the street, a boy begged some money. Pope answered angrily, with his favorite exclamation. The boy, cocking his head on one side, eyed his shrunken body, and exclaimed : "It would be a good deal easier to make a new man."

FILLING CHILDREN'S TEETH.

Dr. W. G. A. Bonwill.

From New Era in Dentistry.

I never use gold in the temporary teeth, seldom amalgam or tin, save on grinding surfaces, where cavities are very small or very large and no pulp involved in the part, and oxiphosphate very seldom, and only where I can keep it perfectly dry. Not that any of these articles are not valuable, but the preparation of cavities and the situation of decay, the near approach to the pulp of nearly every proximal decay and the age of the subject preclude their use. Never demoralize any youthful client by much excavation or formidable show of instruments, or by slow, sluggish movements. My aim is expedition; as few minutes in the chair as possible; inflicting but little pain and inconvenience, gentleness, kindness, and yet positiveness.

My greatest ally as the filling material is pink gutta-percha, such as is used for base-plate. Aside from its use for a stopping on all proximal surfaces, there is one grand object to be ever held in mind, the importance of the position of the first permanent molar when it emerges. Unless this base, column, or abutment, if you please, is not kept well back toward the ramus, then irregularity will come to the incisors. It is not enough to merely stop decay and stuff in amalgam or oxiphosphate; we must keep the temporary molars from approaching each other more than normal, and prevent the alveolar processes from encroachment and absorption from direct pressure of the roots of the temporary molars, which is invariable when the proximating surfaces are cut by caries and allowed to trespass on each other. We cannot use a separator here to gain space; we dare not cut or shape the cavities for a metal filling for fear of the pulp. What is to be done?

If possible, as soon as the least decay is noticed on the proximal surfaces, and you can get in from the crown or on the buccal sides with the least excavating, by hand or machine, if it must be used, whether you can keep the cavity dry or allow it to remain moist, stuff in the gutta-percha forcibly between the teeth, smooth, and let alone to watch every three or six months. Where the cavities are large when you first see them, remove no decay over the pulp. Break down all superfluous walls, saturate with carbolic acid or creasote, force in a lump of the gutta-percha by filling all space as one filling, and let it go till the teeth have become so far separated by the act of mastication—not by expansion of the material—as to have replaced with another or a patch on

the surface. Now, here is the point I wish to make that you have never recognized as a factor, because you have ignored the laws of articulation.

By this means I save from future decay and the risk of pulp exposure, but, above all else, I give a condition that enables the child to use with impunity every part of the jaws with hard or soft food, and no pain or fear of it, which no other plan could offer. And, above all this, I drive the first permanent molar so much further back on the ramus that, the nearer it is to the condyle or point of motion, the wider it keeps the jaws apart at the incisors, and prevents absolutely the too great encroachment of the lower on the palatal surfaces of the upper incisors, which, if allowed, would destroy normal articulation—make too deep an overbite and underbite, and, withal, cause an overlapping of the inferior incisors and the full use of the jaw teeth, because, in the lateral movements of the lower jaw, the incisors would strike first too long before the molars would come in contact, and really only the up and down movement would be attained.

This you could never know, nor can you appreciate now, unless you fully grasp the laws of articulation. This has never been taught, and, save a few followers of my special friends, is not practiced.

This was a revelation to me when, in 1858, the articulator was born. And, as soon as the pink gutta-percha made its appearance, with rubber plates for trial or base plates, before they were brought forth, I struck on this treatment and have followed it ever since ; and the results have proved I have but few cases of irregularity in my own immediate practice, and those but simple ones, and seldom a pulp exposed for treatment, and but few demoralized subjects, and a brighter future for the permanent set, with plenty of room and to spare for them to come in. Should decay occur on the anterior proximal surface of the first permanent molar, I prevent its spread, and in many cases anticipate or treat it superficially ; and, if to fill, do so when I have all the results I want—but seldom with gold even then, as I do not know the exact position the second bicuspid will take ; besides, most of the cavities are very small and not susceptible of contouring all over the proximal surface, which has to be done if we contour at all on any surface. From the temporary incisors of children I generally remove caries when small, and do not scruple to fill with amalgam if they need filling. I have never used the dam for any child except when the permanent molars required filling.

Lastly, to detect the incoming permanent tooth when the temporary one shows no sign of its approach, I, at the proper time,

use an exploring needle under, or in some cases directly through, the gum to feel for it. It is the precursor of events, and saves much irregularity and fear. Without this precaution many temporary molars that become fastened between the permanent molars and first permanent bicuspids would remain in for years too long. So much for the treatment to the twelfth year. Gutta-percha is my sheet-anchor.

In the permanent incisors anticipation is generally adopted; if decayed, or oxiphosphate or pink gutta-percha is used, never gold. I seldom have any fillings at all in these teeth. The sixth-year molars on buccal surfaces are generally smoothed and decay arrested, or, if to be filled, pink gutta-percha. It is impossible to save every tooth without filling; yet, even with the worst of these cases, superficial decay can be arrested and thousands of fillings saved, and our art made a comfort and a blessing. *International.*

DISEASE OF THE ANTRUM OF HIGHMORE FROM A MEDICAL STANDPOINT.

Wm. D. Babcock, A.M., M.D., Los Angeles.

Opening in the nose are several cavities; the largest of these is the antrum of Highmore, the maxillary sinus. Its shape is that of an irregular pyramid, its apex being toward the zygomatic process; its lateral walls are formed by the orbital plates and the lateral plates of the superior maxillary bones; its base or inner wall, which separates it from the nasal cavity, consists of portions of the superior maxillary, palate and inferior turbinated bones, and the unciform process of the ethmoid bone. It communicates with the nose by a round or slit-shaped opening, the size of which varies greatly. The opening lies at the level of the anterior end of the middle turbinated bone, in the middle meatus. There is often a second aperture of communication below the center of the middle turbinated bone. According to Reschreiter, the antrum of Highmore in men always reaches a lower level than the nasal cavity. The lining membrane of the antrum contains acinous and tubular glands, and serves partly as mucous membrane, partly as the matrix of a periosteum for the walls of the cavity. The size of the antrum varies from the size of the little finger to that of a hen's egg, extending over to the roof of the mouth.

It is only in the last few years that the troubles of the antrum have been to any extent looked into or attention called to them. I could find nowhere that Mackenzie, the father of laryngology,

mentions the antrum or its diseases in his latest edition on the nose and throat. During a six-months' attendance on the throat clinics in Vienna, in 1886, I did not once hear the diseases of the antrum mentioned; I have talked with those who spent two winters there about the same time, and they report the same thing. Since 1886 or 1887, a number of rhinologists have written on the subject, so that we have a good idea of its frequent troubles and complications.

The cause of empyema of the antrum is still in dispute, each faction looking for the cause from its own standpoint or prejudice. Most of the rhinologists, in the last two or three years, are of the opinion that the trouble begins in the nose, while the dentists think that diseased teeth and their complications are the main cause. I, myself, at first thought this last was the real cause, but now firmly believe that the trouble in the vast majority of cases begins in the nose. During a residence of seven years here I have had twelve or more cases, and while in all but one there were bad teeth, still, on close questioning, I found a former history of nasal trouble. In six cases I found decided nasal trouble. In one case, that of a doctor, there was a perfect set of teeth, so firmly set in the jaw that one dentist could not extract a tooth. His case, I think, was the result of an attack of acute catarrh. Zukerkandl, of Vienna, who has made more examinations of the nose on the dead subject than any other person, and whose work on the anatomy of the nose is classic, states that the most frequent cause is inflammation of the nasal cavity. He has a number of rhinologists who agree with him, among whom are Krause, of Berlin, and Bosworth, of this country. Bosworth thinks that the trouble does not come from the extension of acute inflammation of the nasal passage to the antrum, but it closes the opening to the antrum, causing, first, hyperemia of the membrane lining the sinus; with this an increase of secretion. This secretion, being confined, degenerates, becomes purulent, then we have empyema of the antrum. For many years bad teeth were supposed to be the main cause, and we have a number of good men still holding to this view: Frankel, Schmiegelow, Lennox-Brown, McBride, Beverly, Robinson and Garretson.

That bad teeth may be the cause at times is true, but as to their being the most frequent cause, I cannot admit. When we stop to think, the first and second molar teeth usually project in the antrum; there is nothing in the antrum or its surroundings to cause decay. It seems that it is normal, not pathological, to have the teeth so project in the antrum, and where the conditions in the nose are normal and the antral conditions are normal, I can conceive of no cause for pus to form or necrosis to take place there,

because the teeth do project in the sinus. We do not often get the history of the attacks of acute catarrh which have caused the closing of the nasal passage to the antrum; if we could, the cause would often be made clear. We are nearing this point very fast.

During the last epidemic of influenza there have been a number of cases of acute suppuration in the antrum reported. One notable case is that of Felix Semon, of London, the well known rhinologist. In most of the chronic cases I believe we will find that they are the result of repeated attacks of acute nasal catarrh, which have caused a pathological condition of the nasal mucous membrane at or about the opening of the antrum. This condition may be either hypertrophy of the mucous membrane of the middle turbinated bone, or it may be polyps or polypoid degeneration of the membrane. There are few cases of polyps in the nose that there is not antrum trouble.

The nasal origin of empyema of the antrum has, within the past few months, been strongly contended for by Dr. Talbot, of Chicago.* In a paper read in San Francisco, June 5th-8th, 1894, Dr. Talbot says: "Difference of opinion exists as to the cause of empyema of this sinus. * * * With a view of obtaining some facts in regard to this matter, some years ago, I made a special examination of skulls, with the following result: Of the 6,000 antra examined, there were 1,274 abscessed molar teeth. Of this number, 76, or about 6 per cent, extended in and apparently discharged in the antrum. Septa were found in 963 cases. In the treatment of 384 cases of pulpless teeth, in connection with the superior molars in the past twenty-four years, only four cases of diseased antra were observed. Dr. M. H. Fletcher, of Cincinnati, Ohio, examined 500 skulls, or 1,000 antra, in which 252 upper molars had abscesses, making 25 per cent; of the 252 cases, 12 perforated the antra. Dr. Fletcher found, in 224 cases of pulpless molars treated by him, only one case of pus in the antrum. We must conclude, therefore, that diseased antra are rarely due to abscessed teeth." Dr. Bonwill, of Philadelphia, well known to all dentists, stated that he had had but three cases of antrum trouble that came from diseased teeth.

The pathological condition I am forced to give as described by Bosworth, having done nothing in this condition personally: "At the outset of the affection the mucous membrane is hyperemic, slightly swollen, and with its surface dotted over with minute points of ecchymosis, due to the fact that the blood-vessels coursing through the membrane possess exceedingly thin, delicate walls,

*See *Journal of the American Medical Association*, November 24, 1894; also *Pacific Coast Dentist*, p. 242, June, 1894.

which rupture easily, giving rise to slightly localized hemorrhages. As the disease progresses the membrane becomes swollen to ten or fifteen times its normal thickness, this swelling being largely due to an œdematous condition. * * * This inflammation involves not only the superficial but the deep layer of the membrane, which, in this region, constitutes the periosteum of the bony walls of the sinuses. In connection with this, there is a somewhat profuse serous exudation, under which the blood-vessels unload themselves, and the swollen membrane to an extent subsides, followed by a more or less profuse secretion of sero-mucus, together with blood, and this, in the course of time—occupying weeks or months, perhaps—results in a discharge of pure, laudable pus. The latter stages of the disease are characterized by a certain activity in the deep layers of the membrane, or periosteum, under which are formed lamelle, or spicule of new bone, which may project in the cavity or may form thin plates, crossing it in such a way as to divide it in two or more small chambers."

[CONCLUDED IN OUR NEXT.]

WILL THE TOO PREVALENT USE OF PLASTICS IN FILLING TEETH WORK INJURY TO OPERATIVE DENTISTRY?

Dr. J. D. Patterson, Kansas City, Mo.

The introduction of vulcanite cheapened prices, and was so easily worked that a swarm of incompetents occupied the field heretofore filled by skilful metal-plate workers, and crowded them out, to the detriment of that field; and the too prevalent use of plastics will also cheapen prices in the operative field, and will tend to push the skilful operator in gold filling out of business.

In the first place, I incline to deny the assumption that the introduction of vulcanite injured prosthetic dentistry. It did injure our profession generally, on account of the millions of serviceable perfect teeth which were sacrificed when cheap dentures were introduced. In this we find the injury; and, sad to say, this injury still continues to mar nature's perfectness and to keep the dentist, in the esteem of popular opinion, on a plane lower than his due. When the prosthetic dentist in placing dentures was limited to gold and platinum, the fees were beyond the reach of the majority, and so the people conserved their natural organs if they did not cause suffering. But on the appearance of the cheap vulcanite, the natural organs, good, bad and indifferent, of the class formerly unable to pay the high fees, were sacrificed ruthlessly, and the

accomplished men in the profession, and the best informed patients, have on this account deplored the advent of cheap vulcanite dentures. So far as vulcanite work is concerned, we are not willing to admit that the best results are accomplished more easily than with metal. True it is that in the usual slip-shod vulcanite work, commenced without artistic knowledge and completed with gross neglect of mechanical nicety, no particular skill and training is required; but a denture of vulcanite, made in a superior manner, perfect anatomical form, perfect preparation and protection of model, perfect joints if in block teeth, or perfect simulation of natural gum where block teeth are not used, all require a degree of skill just as high as is required in making a gold plate. The result cannot be so perfect on account of the additional clumsiness of the vulcanite in its palatal portion, and lack of strength; but in securing the most perfect possible result with the despised vulcanite, your skill is as thoroughly tested with the one as with the other. It is true there is not required the skill in metal working which the jeweler's apprentice knows about, but that knowledge can scarcely be held at a high valuation which brings only one dollar and seventy-five cents per diem to the finances of the competent journeyman jeweler.

It cannot surely be denied, that since the increased use of plastics, thousands of teeth are daily made useful that were formerly thought beyond the reach of dental art; and, that also on account of the lessened cost of plastic materials, thousands of people have blessed operative dentistry who would without the plastics never have known the relief of any operative procedure.

However we may boast of gold fillings, and take pride in accomplishing beautiful results—as we all do—yet we must all have a feeling that the filling of the future will be a plastic; that the ideal filling not yet found will be for the majority of cases a much-despised plastic; and can we deny that this use of the material will ultimately bring about great improvement in these same plastics, so that the ideal filling will thereby be more rapidly reached? We can look back only a few years, and trace the improvement in nearly all of the plastic filling materials; and the improvement has been the natural result of an unusual demand, which our questioners would no doubt call a "too prevalent" use. It is possible poor judgment has been used in plastics, but poor judgment is also used with gold; but out of all mistakes we generally find the summing up somewhat nearer a better standard.

If it is desirable, as a few spirits in our profession seem to think, to exclude from the ranks all save a select coterie who scorn the plastics and obtain large fees with gold, who are continually

emphasizing that they will not have amalgam in their offices, denominate it "nasty stuff," and say that it brings disgrace to our calling—the "too prevalent" use of plastics will, of course, infringe on their assumed sovereign right, and the circumscribed coterie will be broken up; but when a larger and better horizon lightens up, and the altruist dares to ask for the greatest results to the greatest number, this coterie will be found to be only squatter sovereigns after all. Our minds must be in sympathy with the larger patronage, whose blessings are just as deserved as those whose relief from suffering could only be obtained with a full bank account.

Like working in vulcanite, we are too apt to believe that little or no skill is brought in demand with the employment of the plastics. The great skill in operative dentistry is in the adaptation of the right material; judgment of the pathological and other conditions of each case as it comes to hand; and then comes the manipulative dexterity. As between gold and cement in filling, allowing that the two materials are used so as to secure for each the best result possible for each, I cannot readily see where any greater skill is called in action in the gold work. It is more tedious, more exhaustive to work gold, and when the operation in gold is over, we point with pride to a great thing accomplished; but it is largely the exhaustion and relaxation of a manual labor, which comes after cutting and piling neatly a cord of wood. So far as the judgment and education and dexterity are involved, there is just as much of either used in the intelligent using of cement, only the exercise of these qualities is not so long continued.

If operative dentistry suffers from the use of the plastics in filling teeth, it will be because of the poor opinion of their value, which invariably leads to careless work in their use. Thus, in our opinion, if ill comes, it will lie with the ignorance and carelessness of dentists themselves, and is not due to the qualification and possibilities of the materials. Instead of decrying useful adjuncts, let us put the blame where it belongs, and purge ourselves of blame in the matter.

As the plastics have widened our field of labor, and made possible conservative operations once impossible, let us turn our attention not to their obliteration, but to their improvement. Another consideration in this: the summit has been reached in the perfection of the various forms of gold, and we are not to expect that they will be improved; nor do we expect that new or improved methods of operating will come to be known. The skilful gold-filler of the future will never excel that of the present or of the last quarter of a century; but in plastic work we are constantly seeing improvement in materials and methods, and we confidently

expect still more improvement in the future. The advent of vulcanite did, as we have explained, have its evil as well as its good results; but we fail to see, in the light of the past, the present, or a logical future, how operative dentistry is suffering, or is going to suffer, from the use of plastics. Their "too prevalent" use will only compel more prevalent visits to the dentist, which will give more constant supervision of the dental organs; and that is surely not an unmixed evil to either patient or dentist.

If any of our methods or practices are inartistic, then those practices or methods should, if possible, be changed; for the dentist who is not an artist is a poor professional specimen. I apprehend that one of the most prominent changes in dental practice, which we will see within a very short time, will be a general movement with both patient and doctor against the unnecessary placing of considerable surfaces of gold in the anterior teeth; which practice, many already see, is grossly inartistic, and, we must admit, reminds us of the gold ring in the nose of the barbarian. In the correction of this objectionable practice, the plastics in filling must be the principal factors. The observant practitioner, who is fortunate in having among his patients the most cultured and artistic, cannot fail to have noticed their extreme repugnance to the appearance of gold in the mouth. They prefer the plastics, and are glad to return frequently for their renewal rather than have flashing gold shock artistic feeling. We boast of our Western civilization, and I am as proud of it as any, but in many realms we must give preference to the judgment of people, of places, and countries older in artistic education and feeling. These people are almost to a unit against the gold display we have referred to. American dentists, who have gone to practice in European capitals, tell us they almost forget how to insert gold, for their patients want none of it; first, on account of its glaring prominence, and second, because they object to the long sittings often necessary for gold work. This latter feature is also yet another argument for the plastics, for there are few operators who have not witnessed considerable shock from protracted gold operations, on account of reflex impressions made through the fifth nerve on vital ganglia.

The use of plastics will not injure operative dentistry, but rather enlarge its field; because, while ignorant, unskilful, or indolent practitioners will injure, by using it without judgment, where a more permanent article should have been used; yet, generally the use of plastics will redound to the better comfort of humanity, and to the increased success of operative dentistry.

CAUSES OF FAILURE.

*Dr. W. G. A. Bonwill.*From *New Era in Dentistry*.

Let us take up the general causes of failure. We cannot ignore the almost utter worthlessness of tooth-structure. This we call the "predisposition." My experience is that we are more degenerate every year, and the fight is harder to save teeth. It requires wisdom, foresight and skill to dare attempt the anticipation of caries. I have attempted to make the effort. True, anticipation, as a general rule, cannot be relied on by the average dentist. But there is much that can be done to check caries in its very incipiency and that without filling.

The materials as substitutes for lost structure we will now take up. Gold is acknowledged by the profession generally to be preëminently the best, and we want no better testimony than to look in any and every mouth and behold gold, gold, gold. Fillings no larger than pin points and heads dotting every valley. Men talk and write gold, and yet they deplore it does not save. They ask for the reason why? The "New Departure" said "never use it." Here are two extremes, and neither has shown why either should be practiced. You ask for testimony. I refer you to the many kinds of gold and preparations or forms of gold, each manufacturer claiming special features for success; the immense quantity of it used; the cases that have been filled and refilled. I filled a superior central incisor last week with Abbey's gold that had been filled fifteen times before. There was left for me a tooth with living pulp, with the palatal surface one-half gone, and both mesial and distal surfaces involved to the cervix. Think of it! None of you can deny that gold is the idol of the profession, and a man who talks against it is risking his reputation.

Gold, *per se*, is good for preserving tooth structure. Compatibility has nothing to do with it. Adaptability is all of it. If tooth-structure is worthy as a base, and a man knows how to line the walls of the cavity, it will preserve, provided the cavity is rightly shaped and the contour is given such form as to preclude any possibility of the active causes of caries. There is no greater error made than to suppose it is necessary to have various qualities and forms of this metal.

International.

NEW ANESTHETIC MIXTURE.—Chloroform ten parts, ether fifteen parts, and menthol one part, used as a spray, is recommended as an excellent and prompt means for obtaining local anesthesia, lasting about five minutes.

Medical Age.

A FEW MEDICAL MISTAKES.

An empty laudanum bottle and a hasty investigation proved the young man to be dying of opium poisoning. A physician of good reputation was hurriedly sent for. In the meantime, the unconscious man was being drenched and rubbed, and evidences of regaining consciousness began to be manifest when the doctor arrived. The use of the hypodermic syringe was the custom, and swiftly the doctor dispatched a large injection of morphia in the deltoid. The doctor was evidently too late with the antidote (?), for the young man now sleeps peacefully on the hillside.

"This, my dear man, is a carbuncle, and should be lanced," and lance it the doctor did, but the gush of blood proved it to be an aneurism, and he, too, sleeps peacefully on the hillside.

"I only took one dose of the medicine, doctor, and it made me so much worse that I have not taken any since." "Nonsense," said the good physician, in a rage; "to prove the absurdity, I will take the whole of it," and he did, but the next day he, too, was laid to rest on the hillside.

The doctor had been called in consultation, but on his arrival found that his homeopathic brother had prescribed and gone. "What's this?" said the doctor. "Oh, yes; sugar pills. Well, I'll just eat them to save you the trouble," and he did; but they proved to be strychnine granules, and now he, too, sleeps peacefully on the hillside.

The woman was in early stage of labor. The doctor arrived, and, without making an examination, began "riding" the abdomen to "press" it out. The mother shrieked with pain; there was great commotion; the child was finally born, but the mother had collapsed. There had been a rupture. They, too, mother and babe, sleep sweetly on the hillside. *Dr. C. F. Howe in Med. World.*

CEMENT FILLINGS.

In regard to the question of remuneration received in applying cement for tooth-fillings, I am reminded of the remark of one eminent in our profession. He said: "Don't charge for the material; charge for the place." If it requires a plastic filling, put it in and don't put in a gold filling. I never hear of this remark of Dr. McKellops about not having any amalgam fillings in his office, but what I think of a case that came in my office—one of Dr. Natlerig's patients, of Ypsilanti, Mich. He is a man whom we all know uses gold in every place he can use it

at all. In this case he had attended the lady patient from infancy, but she had been from under his care for almost five years, and when she came in to me, from the western part of the State, she stated she had not had her teeth looked after for that length of time. I found in her mouth every filling which was put in the posterior or proximal cavities of the bicuspids and molars was out; and the fillings which were in the anterior of the same teeth, and which were quite numerous, were as perfect, seemingly, as the day they were put in.

So that case convinced me those men who claimed they can put in a gold filling in cavities that are hard of access—for instance, in the case of a posterior cavity of the second molar—as well as any man can put in a plastic filling, are mistaken, and they can not do it; that in this case, if a plastic filling had been put in with discrimination, the teeth would have been in much better condition.

Patients ask me, almost the first thing after I glance at the teeth: "What are you going to fill it with? Can you fill it with gold?" I very frequently say: "I can't tell you just yet; it may be best to fill it with gold, or perhaps something else; it depends somewhat on the condition I find the tooth in when I get the cavity excavated."

A cement filling will nourish the dentine; it has a tendency to harden it; while my experience has been that gold or any metal filling will not do that, and for that reason, especially in frail teeth, I almost invariably use the plastics, and have good results from it.

Dr. Burkett in Western Journal.

There has been a tremendous progress made in the extension of the applications of gold plate work to the purposes of prosthetic restoration. The exquisite gold crown- and bridge-work, so much in use now, is of great usefulness. The rapid development of this work has been the most conspicuous feature of advance of the last decade. It has served to render useful, teeth that were in former years condemned to the forceps, and has almost banished partial plates with all their discomforts and injuries, so that this invention has indeed been a great blessing to humanity. Being essentially a new idea, the discovery and perfection of crown- and bridge-work has been a great advance, for it was the birth of a great principle in practice, and the promulgation of great principles are the milestones which mark the path of human progress.

A. H. Thompson.

MALARIA GENERALLY A WATER-BORNE DISEASE.

There have been many theories promulgated as to the origin and mode of dissemination of the malaria germ. The name itself perpetuates one theory, most universally believed in—its transmission through the air. This we believe to be a scientifically demonstrated truth. Hence persons should avoid undue exposure to a malarious atmosphere, especially during the period from sunset to an hour after sunrise. However, we do not believe that this is the only or even the principal mode of the dissemination of this poison. It has been conclusively proven that persons may live in otherwise very healthful locations and, drinking contaminated water, suffer from malarial fever, while others living in the same locality, but drinking pure water, will be entirely free from the disease. During the season now at hand, make close observations in your locality. Have the families under your charge drink no water that has not been boiled, or perhaps even boiled first, then filtered, and have them be careful to eat no raw fruit, berries nor vegetables without first removing any outside contamination by paring or washing. It is our opinion that many communities now subject to malarial disorders can, by these precautions, enjoy comparative immunity.

Med. World.

TOOTHACHE.

Dr. Hartmann (*Deutsche Med. Wochenschrift*) has employed thymol in toothache from hollow teeth in place of arsenious acid. He fills the cavity of the tooth with a tuft of cotton on which a few crumbs of thymol have been sprinkled. It does not irritate the mucous membrane of the mouth much, and it is easily removed by rinsing the mouth with water. If a rapid action is desired, let the patient rinse the mouth often with warm water, to facilitate the solution of the drug. It never increases the pain at first, as arsenic does, and is not poisonous. Others pack the cavity with cotton moistened in a mixture thus composed:

Rub together
Carbolic acid (liq.),
Gum-camphor,
Chloral hydrate,
Menthol,
Glycerin equal parts.
S. Apply.

Times and Register.

HYGIENE OF THE EYES.

The preservation of the sight is of the utmost importance. We recommend especially the following rules, by Dr. L. W. Fox, Professor of Ophthalmology, Medico-Chirurgical College, Philadelphia :

- (1) Avoid sudden changes from dark to brilliant light.
- (2) Avoid the use of stimulants and drugs which affect the nervous system.
- (3) Avoid reading when lying down, or when mentally and physically exhausted.
- (4) When the eyes feel tired, rest them by looking at objects at a long distance.
- (5) Pay special attention to the hygiene of the body, for that which tends to promote the general health acts beneficially on the eye.
- (6) Up to forty years of age, bathe the eyes twice daily in cold water.
- (7) After fifty, bathe the eyes morning and evening with water so hot that you wonder how you stand it; follow this with cold water, that will make them glow with warmth.
- (8) Old persons should avoid reading much by artificial light, be guarded as to diet, and avoid sitting up late at night.*
- (9) Do not depend on your own judgment in selecting spectacles.
- (10) Do not give up in despair when you are informed that a cataract is developing; remember that in these days of advancing surgery it can be removed with little danger to the vision.

Med. World.

The editor of the *International* thinks that professional life is such a serious thing that dental journals should abjure anything humorous. Well, for our part, we fail to see why a witty or humorous paragraph "is an evidence of unrefined life," whether found in a professional journal, a scientific journal, in a literary or artistic publication, or if spoken in daily life. If Prof. Truman would take the publications of the world, even of the publications in professional ranks, and strike out those in which were found anything witty or humorous and designed to make the reader forget care for the moment, he would find he had a small list remaining, and would begin to think that perhaps the other fellows were not so "unrefined" after all.

Western Journal.

* For forty years we have read and wrote much in bed and by artificial light, yet at seventy we have good sight.—ED. ITEMS.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. E. N. Francis, Uvalde, Texas.]

Question 201. *A mouth exceedingly flat; the roof very spongy; the four upper incisors remaining. I have made several plates; some with suction chamber and some without, but all with the same result as to usefulness—none will stay in place. The last plate seemed to be a success in every way; it held very firmly; had a good suction; but we were again disappointed, for, in an hour, patient felt or heard a hissing noise and the plate had fallen. Some of these plates had a band extending around the gum above the remaining teeth. But this was a continual annoyance, as the plate merely hung by it. Will you tell me how to fit a mouth of this kind, and if the four incisors are a hindrance?*

The patient will be a thousand times better off with those incisors extracted, because, as she is compelled to wear a plate, it will be firm and a good adhesion if the plate extends all around the outside of process. She would need no air-chamber.

The gain by extraction would more than compensate any possible advantage by retention. *L. P. Haskell, Chicago, Ill.*

This is a condition that represents the minimum amount of adhesion, the incisors occupying one of the most valuable portions of the ridge; their absence would secure a complete adhesive denture.

There are but two scientific principles involved in the maintenance of artificial dentures—friction and adhesion. For the latter we depend on the saliva between the denture and roof of mouth; the former are spring clasps adapted to gold caps.

This mouth demands both; therefore, by adjusting an open-faced gold cap on each incisor, and then fitting gold clasps carefully to them, enough friction could be added to make a satisfactory denture.

The incisors are not a hindrance when the proper friction devices are added to them for the purpose of holding the denture in place.

C. H. Land, Detroit, Mich.

Question 202. *Man, forty-two years of age, has lost first left lower molar, second right lower molar, and first left upper molar. All other teeth are intact, solid, and gums healthy. Patient is an inveterate tobacco chewer, and his teeth are worn nearly, some quite, to gum margin. The masticating surfaces of teeth are very sensitive. What can be done to preserve his teeth and relieve the sensitiveness?*

I would treat masticating surfaces with nitrate of silver, and then cap all around and lengthen the bite.

I think this will preserve the teeth and make a very serviceable way of treatment.
A. A. Kumler, Cincinnati, O.

I have had quite a number of such cases. Crowning was too expensive for them, so I selected corners and spots on the grinding surfaces where retaining pits could be drilled; these were generally shallow.

I prepared platina alloy, applied a sticky oxiphosphate all over grinding surface, applied compressed buttons of alloy, carrying what I could into retaining pits, and generally found room for an alloy plating from the thickness of a five-cent coin to that of a twenty-five cent piece.

All I have done in this way have been entirely satisfactory.

I have used gold for the same purpose where the patient could afford it, but it was no more successful than the alloy, if of a good quality.

The gold should be used in plating over abrasion, where the work is in plain view.
W. E. Driscoll, Manatee, Fla.

In treating a similar case I dried the surface of teeth and built up surfaces of molars and bicuspids, so as to occlude; and after the wax was trimmed to shape to let all of the teeth, except canines and incisors, occlude properly, I took impression, and stamped gold-cap crowns, or rather half crowns, which extended only to the point of largest diameter.

The teeth require no grinding, except on proximal surfaces.

I set the back crowns, first making the lap or grinding surface of 30 gage, and those farther forward were made thicker, as more space was acquired.

The upper front teeth were built down with gold to the new occlusion.

You will find some difficulty in cutting sufficient space between teeth for two thicknesses of gold.
G. W. Collins, Atchison, Kan.

Question 203. *I examined a lower molar for young man of twenty-five. Patient in good health; tooth ached but little; nerve exposed. After devitalization I extracted pulp, treated four days, drilled, and after drying root with hot air, finding the tooth in good condition, I filled to apex and finished with amalgam. The tooth has given no trouble, but after two months he is troubled with jaws popping when eating, accompanied with pain—worse in the morning. It seems to be between or in glenoid cavity and condyle. It is impossible for him to move his jaw forward. There are two fillings in the upper incisors. Is the tooth the cause of this trouble, and if so, what can I do?*

If the case was mine I would remove the filling, clean out the root-canals, treat with antiseptic, and watch it awhile before refilling.

It is possible the trouble comes from this tooth. I don't think any trouble can come from the upper incisors.
A. A. Kumler.

I would not feel competent to answer without knowing whether this cavity was of a proximal or coronal location. If the former, and the dam was not used in filling, the cause of trouble may lie in a surplus of filling material, remaining between the necks of teeth.

Should also look for calculus in duct of steno.

G. H. Collier.

[The trouble may have been caused by straining of muscles or joint lining during the operation of filling. Inflamed muscles are always stiff after inaction, which might account for the trouble being more marked in the morning. Friction with oil, electricity or blisters, may be used to some purpose. An appliance to draw the joint articulation apart, to reduce friction, could be used, but we think it unnecessary.—E. N. F.]

Question 204. *Lady, fifty years of age, has consulted me for ten years in regard to her teeth. I have filled several of the molars, bicuspids and incisors, both upper and lower, at various times with amalgam. Now the teeth that have not been filled, including molars, upper right central, left lateral incisor, and right second bicuspid, have become very loose and are almost dropping out, while the teeth that have been filled are perfectly firm. How is this explained?*

I cannot give the cause. I should treat the loose teeth by applying nitrate of silver to the margin of gums to stimulate healthy action.

G. W. Collins.

I do not see how the filling could have any effect toward maintaining the teeth firmly. My experience has been that it requires an actual test of treatment to prove whether a given case can be controlled for any considerable time. I use more carbolated potash than any other remedy. Next, either aromatic or diluted sulfuric acid; and cleanliness, friction of the gums, are the most practicable mode of keeping the teeth steady.

I have known cases where State Dental Associations failed to suggest a successful treatment of these cases.

W. E. Driscoll.

[This question was sent from Europe. We have been unable to obtain many answers, as it is a very uncommon case. If any of our foreign readers have had experience in treating similar cases, we will be pleased to hear from them.—E. N. F.]

The following is a clipping from the *Bridgeport Evening Post*:

MEMORIAL PARADE.

The most arduous work of a celebration of this kind devolves on the chief of staff. This important position is filled by Charles B. Baker, D.D.S. All of the details of organization are left to him and he is held responsible for the technical appearance of the procession. It means that a cool head, calm judgment and a wonderful amount of tact are necessary to properly fill the place. Dr. Baker, by his splendid management of the parade last year, made a star record, and the committee hastened this year to secure his services. Never before has the honor of chief of staff been conferred on the same man twice in succession. Dr. Baker, though not a military man, is a fine horseman and is every way qualified to make Thursday's event thoroughly successful so far as the parade goes.

We are always interested in the correspondents of our question department, and wish to congratulate our Bridgeport friends in being able to secure for the second time Dr. Baker as chief of staff in their memorial parade.

PRACTICAL POINTS.

Mrs. J. M. Walker, Bay St. Louis, Mississippi.

Root-canal Filling—Salol and Oxiphosphate.—After thorough dessication, fill the canal and part of the pulp-chamber with dry crystals of salol, packed down as tightly as possible. Then apply a small nerve instrument, warmed slightly. As soon as it touches the salol, the latter is liquefied, and as it becomes heated it passes into the most infinitesimal space, and almost as soon as the warm instrument is removed the salol solidifies into a hard, crystallized mass.

H. C. Registér.

Immediate Replantation.—While still holding the tooth in the forceps dip in eucalyptol. Trim and smooth the root, enlarge the canal through the foramen, and fill the canal. Dip again in eucalyptol, and drive home through the fibrinated blood in the socket (which must have been protected from ingress by saliva). Blood and serum, kept aseptic, are nature's provisions for healing by first intention.

A. C. Hewitt.

Pericementitis.—The local application of pellets of ice is the very best treatment for acute pericementitis.

J. Y. Crawford.

Tin and Gold Filling for Young or Poorly-calcified Teeth.—Lay a sheet of No. 4 tin on a sheet of No. 4 gold, and fold to the eighth of a sheet in width; then cut in strips of suitable width. Introduce in the cavity and fold the foil on itself as the filling progresses, condensing with a broad-faced plunger point, followed by steel burnisher rotated in the engine. It will not stain tooth structure, forms a perfect guard at the cervical portion in proximal fillings and preserves the teeth till calcification is completed.

J. W. Canaday.

Pyrozone in the Detection of Defective Amalgam Fillings.—The application of etherial pyrozone to the margins of old amalgam fillings will often, by the formation of gas, reveal the existence of defects which the eye has failed to detect. It offers a safe and wise test in all doubtful cases.

Geo. S. Allan.

Mica for Matrices.—Oiled mica, by virtue of its extreme thinness, smoothness, flexibility, resistance to acid action and shapability with scissors, and also its cheapness, leaves little to be desired in the way of a readily applied and removed cavity-wall.

W. Storer How.

Crown Occlusion.—In case of irregularity preventing use of ordinary ready-made dies, fit the band as usual and trim the occluding edges as necessary. Place band on root and fill to overflowing with quick-setting plaster of Paris. Have patient close teeth naturally. When hard remove band, trim off surplus plaster and make fusible metal die.

W. H. Whitslar.

Partial Gold Plates, Rapid and Clean Method.—From the impression make die and counter-die of Melotte's metal. Two or three duplicate plates of very thin gold (32 gage) swaged separately, then swaged together, and finally soldered, giving a plate of any desired thickness, thickened at any desired point, with perfect adaptation to the model and the mouth. No molding in sand, no casting of metals fusing at high temperature, no dirt, no heavy pounding.*

S. S. Stowell.

Emollient Wash for the Skin.—

B.	Liq. potassæ arsenitas	fl. ʒiv
	Glycerin	fl. ʒij
	Bay rum	fl. ʒxvi
	Aq. pura	fl. ʒxxxij

Let evaporate from hands and face. *A. C. Hewitt.*

Conservative Pulp Treatment.—When a pulp is accidentally exposed, perhaps wounded, touch it with camphor (alcoholic solution). The alcohol evaporates, leaving the camphor which forms a healing and cleansing covering. Cover with gutta-percha and fill as desired.

Dr. Spaulding.

Strengthening Frail Roots for Crowning.—Fit a very thin platinum band extending a little under the gum and cement to the root. With cement, set How's screw-posts in the canals and fill the band with amalgam. Over the platinum band place an all-gold or porcelain-faced gold crown.

Dr. Stevens.

Pulp Devitalization in Deciduous Teeth.—Two or three applications of carbolic acid, 95 per cent, will sufficiently mummify the pulp to allow of its removal.

D. M. Gallic.

Gutta-percha Fillings in Proximal Cavities.—When the enamel is lost on the grinding surface border of proximal cavities, gutta-percha fillings may be saved from wear at that point by inserting a warmed platinum pin from an old rubber tooth, the head of which has been beaten out flat and given a somewhat triangular shape, corresponding to the grinding surface aspect of the cavity.

S. G. Perry.

*Plate made in eleven minutes; as timed in clinic.

Acute Pericementitis (Preceding Abscess).—Having removed all dressings from the cavity of decay, with a rubber bulb having a fine syringe point, direct a jet of water as hot as the tissues will tolerate in the cavity and on the surrounding tissues. Hold the hot water in the mouth till the syringe is refilled. Keep the water hot and raise the temperature as the tissues will allow. Keep it up till relief is obtained, which will often be very suddenly. If the pain is excruciating add a few drops of carbolic acid to the hot water, for anesthetic effect.

C. N. Johnson.

The "Morrison" Crown.—Take off the root a line or so beneath the gum. Tunnel out abruptly the opening in the butt of the root, leaving space for a goodly amount of cement which is more valuable than tooth substance at this point. Shape a piece of platinum plate to the end of the root, burnishing it to place and making it slightly countersunk in the funneled space. Through it pass a pin, similar to the Logan crown pin, and solder to the platinum plate. Grind a plain plate tooth to fit the root and fasten to pin with wax, remove, insert in plaster and marble dust. When set, remove wax and finish with gold solder 18 to 22k.

Wm. Crenshaw.

Root Canal Gage.—Measure the length of the canal with a probe, gaging it with a small perforated disk of rubber-dam slipped on the instrument. Close the foramen with ordinary gutta-percha, carried on the point of the probe-gage, as above. Allowing for displacement; you will know if you reach the apex with the first piece.

Geo. Evans.

Pulp Capping.—If the dentine shows healthy sensation under the excavator, then it has a fit pulp to cap, regardless of age of patient.

J. N. Crouse.

To Allay Inflammation of the Pulps.—With finely pulverized thymol fill a depressed disk of No. 60 tin foil and insert over the pulp, placing a drop of chloroform over the disk if the pain is very severe. Several applications, under temporary stopping, may be necessary in severe cases before applying arsenic.

Chas. Keyes.

An Elastic Matrix for Amalgam Fillings.—Place over the tooth a piece of elastic tubing of suitable length and circumference. Use amalgam in firm plastic condition; neither too soft nor too dry. This matrix is self-adapting, and valuable in nicked teeth, having a clean cervical edge with smooth surface and close edges. Leave in position with instructions to remove in, say, three hours.

A. A. Mathews.

Preventive Treatment of Erupting Teeth.—Wash out the fissures and press a pat of oxiphosphate in the coronal surface, protecting the fissures while the tooth is unused in mastication and non-antagonized. The danger of softening of the fissures is greatly lessened.

S. G. Perry.

Filing Small Articles.—When about to file the cusps of a gold crown, or other small pieces of metal, heat and set in a piece of sealing wax. When cold, file as desired, with great saving of trouble. When ready to remove from the wax, soften the latter with heat.

G. N. McMillen.

"Rubber Sore Mouth."—When the roof of the mouth is reddened and inflamed under a rubber plate, paint the membrane every other day with

Europhin, in powder.....	gr. xx
Ol. gaultheria.....	min. x

Will quickly affect a cure.

Dental Review.

Antiseptic Pyrozone, in the Treatment of Cavities.—The treatment of all cavities by antiseptic pyrozone, just previous to the insertion of a filling, whether they are discolored or not, is pursued as a routine practice, for the sterilizing and detergent effect of the preparation on the dentine.

E. C. Kirk.

A Reliable Obtundent for Sensitive Dentine.—

R. Cocain	grs. v
Carbolic acid	grs. xx
Chloroform.....	3ss
Muriatic acid.....	mq x
Alcohol	3ij

C. N. Peirce.

To Check Persistent Hemorrhage After Tooth Extraction.—Soak a strip of amadon (spunk) slightly larger than the root of the extracted tooth, in Fletcher's carbolized resin, and pack firmly in the socket. No compress or bandage required.

T. S. Hughes.

Disinfection of Foul Root.—Perchlorid of mercury dissolved in absolute alcohol—two or three grains to the ounce; strength of the solution to be modified by the condition of the canal and cavity.

Dental Record.

To Secure a Smooth, Delicate Impression in Plaster of Paris.—Have the patient rinse the mouth with warm water to remove all mucus. If the soft tissues appear abnormally dry brush them over with glycerol.

* * *

ITEMS.

We find this mention in a recent issue of the Jackson, Mississippi *News*:

Mrs. J. M. Walker, of Bay St. Louis, is the official reporter for the State Dental Association. Mrs. Walker shows the boys of the press every courtesy and helps them very materially to make up their reports.

* * *

In vulcanizing rubber between metal to produce a smooth surface, rub quick silver on the surface of metal before packing rubber, and the metal can be easily removed from the plate and leave a polished surface. *Dr. N. R. Macalaster.*

* * *

There is a weakness in the thought, leading to cynicism in character, when we allow ourselves to harbor the notion of an unfriendly or critical disposition in others. We weaken ourselves, and destroy our chances for work and happiness, by fostering unworthy suspicions of this kind. *J. H. Woolley.*

* * *

LIQUID GLUE.—

Chloral hydrate.....	250 grammes.
Gelatin.....	400 "
Water.....	1000 "

The solution is ready in forty-eight hours, and is said to be excellent for mounting photographs.

* * *

Here is a good prescription for any and all forms of rheumatism, which has given me universal success:

R. Sodii salicylatis.....	3iv
Svapnia	grs. iv-viii
Ol. gaultheria	3ss-iss
Liq. ammon. acetatis.....	3j
Syr. tolu	q. s. ad. 3iv

M. Sig.—Teaspoonful every two or three hours, or as necessary to obtain desired relief. *Medical World.*

* * *

OBTUNDER FOR SENSITIVE DENTINE.—Dr. N. H. Keyser says: I have used for obtunding sensitive dentine the following formula:

Ether (Squibbs).....	dr. ½
Oil mustard.....	gtt. 15
Oil cinnamon	gtt. 20

This should only be used when the rubber-dam has been adjusted around the tooth. *Dental Office and Laboratory.*

The last meeting of the American Dental Association was an unusually uninteresting one from a variety of causes. It was held too far south, and in the hot season, and we know also that in associations of this description every few years, like the financial condition of the country, there comes a low ebb; after awhile it starts up in new life. The American Association in the last three or four years has seemed to be ebbing, till at the last meeting it was at a very low stage indeed.

Dr. Patterson.

* * *

PHYSIOLOGY.—Professor Ingram says: The causes of the circulation of the blood in order of their importance are: First, the inequality of pressure in the blood-vessels, which is the greatest at the ventricles, least at the auricles, and is regulated by the heart; second, the affinity of the tissues for the blood as it passes through the capillaries; third, vascular contractility; fourth, muscular contraction; fifth, respiration. *American Medical Journal.*

* * *

Dentists, of all men, should dress well and in good taste. The late Dr. Byron E. Coy, of Baltimore, who was an emperor in his practice, once told us, while an associate with him, that he had never allowed any one to dress better than he did. He was an impressive and good-looking man. We saw a gentleman present at the last meeting of the Odontological that reminded us much of Dr. Coy, though somewhat taller. He has a good tailor also. He is a person that is noticed always for his personal appearance.

Ex.

* * *

Many, fearing that the filling of a tooth will be painful, refuse to have this done. But when the proper manipulation is employed, the operation is accompanied by very little acute pain, and if the decay is of recent formation, by none at all. Every consideration, then, whether the ultimate welfare of the tooth is concerned or the desire be to avoid suffering and discomfort, prompts the patients to early attention to his teeth, before decay shall have proceeded so far as to cause toothache.

V. C. Bell.

* * *

In reference to annealing gold, I want to say the best method I ever tried was in a case of this kind: I was called to the house of an invalid to fill a tooth. I left the office without the annealing lamp, and I asked that they furnish me with an ordinary kerosene lamp. They brought me one with a hollow wick. I held the gold over the top of the large chimney of the lamp, and never saw gold work as nicely as that did.

C. R. Taylor.

In their failure to charge adequate fees, dentists themselves are often to blame. For instance, in many places the custom prevails of applying the fee for the extraction of teeth on the payment for the artificial substitute to be made, thus giving the patient the impression that no particular value is placed on the operation of extraction.

J. W. O'Bryan.

* * *

I have noticed one form of decay in persons in the habit of holding a quid of tobacco on one side of the mouth. The decay takes place at the enamel margin, then the pericementum is exposed and decay takes place along the gum line.

C. R. Taylor.

* * *

In the treatment of septic pulp-canals and alveolar abscess, thousands of teeth are now saved that would have been given up at once in the previous decade. Every practitioner now treats and saves scores of teeth that he formerly would have extracted as hopeless. This is a wonderful gain, and is a positive advance on the practice of the past. Pulp-canal treatment is now performed with scientific precision—thanks to the antiseptic principle. The many antiseptic remedies that have been brought to our notice, and that have been useful in various degrees, attest the interest and importance attached to this branch of therapeutics.

A. H. Thompson.

* * *

THE SAVAGES ARE, UNCONSCIOUSLY, BACTERIOLOGISTS.—M. Dantec has demonstrated that the arrow poison used by the natives of the New Hebrides contains neither serpent venom nor vegetable extract. It contains two deadly disease germs—the vibron septique, which causes that form of blood poisoning known as malignant edema, destroying life in from twelve to fifteen hours if still active, and the bacillus of tetanus, which, if the former poison prove inert, will finish up the unlucky victim in a much longer time. The poison is obtained from the earth in marshy places. The horse cannot be the origin of the tetanus germ, as that animal is unknown in that entire group of islands.

Med. World.

* * *

The opinion seems quite general that it is a foolish waste of money to have the temporary teeth filled. Parents do not realize the importance of retaining the deciduous teeth till the proper time for the eruption of their successors. They do not think of the injury to health that is caused by imperfect mastication of food, nor do they know that the arch will not expand properly when the teeth have been prematurely extracted, thus causing

crowding and irregularity of the permanent teeth. Consequently, when the little one's teeth begin to decay, the usual request of the parent is that they be removed. If parents could be brought to the point of recognizing the need of preserving the temporary teeth, it would not only enhance the comfort and health of the little patients, but by making them more familiar with dental work, they would not have the usual fear of the dentist—that is, if he is gentle in his treatment of them—and early in life there would be created an appreciation of the care of the teeth, with obvious results. On the same principle that general education should begin during childhood, so should dental education commence at that time.

J. W. O'Bryan.

* * *

THE COCAIN HABIT: ANOTHER VICTIM.—J. E. Jarratt, who, a few years ago, was the owner of a saw-mill and drug store at Valley Mills, Tex., and reputed to be worth several thousand dollars, was arrested and jailed for burglary and theft, at Galveston, Tex., on June 6th. His victims were several prominent dentists, whose offices he entered and took money, jewelry, dental instruments and clothing, to the amount of several hundred dollars. Part of the property has been recovered from pawn shops, and the prisoner himself acknowledges his guilt. Jarratt's downfall is due to an excessive use of cocaine. He is about thirty-eight years of age; has been married, but has sacrificed reputation and all else in his infatuation for the seductive drug, and to-day is a moral and physical wreck.

New Orleans Picayune.

* * *

AN IMPROVISED MANDREL.—Get a few "fourpenny" wire nails at the hardware store, select one with symmetrical head and carefully straighten any curves in it on your anvil; then warm in alcohol or Bunsen burner flame, and apply a small quantity of gum shellac, or what is better, some of the "Ideal Base Plate" to the face of the head and attach your corundum wheel, point, or polishing cup or disk (previously warmed), turning it gently between thumb and finger, and truing it up while still warm. After it has hardened, smooth off with warm wax spatula. If the nail head be too large for the point you are to mount, file it down to the required size. This size nail just fits the S. S. W. No. 7 Hand-piece, and the flat face enables one to mount a wheel easily and truly. Oxiphosphate may be used, and perhaps makes a stronger mounting than the others, though not so quickly applied.

J. E. Waterbury, D.D.S., Brockport, N. Y.

EDITORIAL.

WE, AND WHAT WE EAT.

"Why, sir, let me eat plentifully of strawberries, and in six hours I can smell them in my very arm," so said Dr. Chase, of St. Louis.

"I believe," I replied, "that I can smell onions after I have eaten them, and cabbages, and anything that's rank and unsavory; but strawberries and cream!—well, it may be; but I would sooner believe I could smell the fumes of whisky and tobacco, and the filth of the saloon and the nastiness of the dens of infamy, bursting out of every pore of some. Let them scent their breath, and wash and perfume themselves as thoroughly as they may, and still their vile scent remains."

"Why, doctor," the St. Louis man replied—peace to his ashes!—"you have administered medicine enough to know there are many drugs that so saturate the body with their odor that their peculiar scent issues from the whole surface of the body."

"Oh, well," said I, "they were medicines."

"And so it is," he continued, "with many vegetables and fruits, and other substances we eat, whether we call them medicines or food. Try your cow, and see how quickly you can smell and taste garlic, or even turnips, in her milk; and how quickly, if you change her pasturage to clover, the milk and butter will have its sweet and rich perfume. Why, it seems as though the very disposition of the animal had changed to an intelligent pet."

This conversation started a new train of thought in me, extending beyond the scent of things. We asked ourself, "Can I not tell what a person eats by its effect on his very disposition?"

This was some years ago, and I have since made it somewhat of a study. I believe if people live on coarse, unsavory food, their character will somewhat partake of its nature. I would not dare say that if they lived on hog they would be hoggish, and if on skunks they would become skunks; and yet I am not sure that if some of our coarse, vulgar, repulsive people would change their pasturage it might have some effect on their disposition. Do we

not hear even astute physicians say that fish has its effect on the brain, beef on the muscles, and pork on the lower passions? Are we not told that some food makes better blood than other food? That some food is almost a specific for biliousness, another for jaundice, and another for headache? Are we not warned against some foods if we are subject to an inflammatory condition, and against other foods if inclined to dropsy? Is not the man occupied in literary pursuits advised to a different diet to the plowman, and the young, delicate mother to eat food that would not be proper for the sturdy washerwoman? How careful is the skilful doctor to regulate our diet in sickness, not only to facilitate digestion, but to counteract the particular virus of the disease, and to bring into a normal condition the particular organs affected. Said a consumptive to me recently: "It seems to me I had tried everything available for my consumption till I came to Vineland, and lived for two months on grapes, and then for six months longer on the unfermented juice of the grapes. I gained in strength, flesh and health, and have been well ever since." And the very disposition and aspirations of that man were changed by his change of diet.



There is as much difference in teeth as in individuals—the strong and the weak, the hard and the soft, the substantial and the frail, the obtuse and the sensitive, the enduring and the soft lived—and the dentist who does not recognize this in his treatment will often fail of the best results. Who would approach a crumbling tooth with the same design as one like the solid rock? The one determined to dissolve almost before your eyes, the other, though defective, bound to live forever; one as delicate as a sensitive lady, the other as blunt as a plowman; one as tenacious of life as the proverbial cat, the other dying at a touch.

As in medicine, we cannot rely on the same prescription even for the same disease. Each patient must be approached from an individual point of view, and treatment must be modified to meet special symptoms.

OUR SPELING.

Dr. D. S. Tomas rīts me: "Bī the wa, what haz becum ov ūr simplifid speling, u mād so much ov a yēr or two ago? Haz it gon to join the 'Nū Departūr,' and 'Dentistri a twin bruthr ov medicin?'"

Wuns in a whīl we cāl atenshun to the absrditi and dificulti ov populr speling, and sho how it mīt be simplifid. It is trū this iz not dentistri, but prhaps a hint now and then on uthr subjects iz an allowabl varieti, and not an ofens, and tendz to brodn our vūz.

For a tīm the ITEMZ OV INTEREST ūzd much simplifid speling, and we belēv it interested and incrēst our subseribrz. But when the ITEMZ OV INTEREST becām a mōr pretenshus magazēn, its publishrz thot we must conform to jeneral custum.

Ov cōrs we canot spel foneticali without mōr letrz; but iz it not a piti we do our wrst insted ov our best, and that we do not incrēs our letrz to the numbr ov our soundz?

In this articl we do not marc a voul when its sound iz obvius.

When we wr hēthn on the il ov Britn we had no ritn langwaj, and our soundz wr fū and mungral. When the Romanz found and concord us tha forst on us thar alfabet ov twelv, and then ov six-tēn letrz; graduali we hav aded to thēz til we hav twenti-six. Tho unfortunatli k, q and x ar duplicāts. But the soundz ov our langwaj has incrēst fastr than our letrz. Az we hav thrti-six soundz, we shud hav thrti-six letrz to reprezent them. Then, too, we shud hav a singl letz for ēch of our diphongz, and for ch, sh, wh, zh, ng, and for aspirat and semivoul th. Then we cud thro to the dogz our thouzandz ov 'silent' letrz and ūz wun letz for ēch sound in a wrd.

With thēz chanjez our rīting wud be a fifth mōr brēf, and spel-ing wud spel itself. Forenrz and hēthn cud so ēsili lrn Inglish that it wud graduali becum univrsal.

We se this, but most belēv eforts vān to māc eni chānj. But much mōr haz bin dun than iz jenerali supōzd. We hav alredi aded meni letrz to our alfabet, and we cud ad mōr if we had the curāj ov our convicshunz. Fū ar wilng tō tāc the lēd. Franklin did much to cāl atenshun to this reform, and actuali māl populr meni sim-

plifid spelingz. When Webstr gāv us hiz grāt dicshunari he simplifid thouzandz ov wordz. Sins then gradual improvmnts hav taen plās.

Sum supōs our "litl" Speling Reform Asosiashun has acomplisht nuthing. It will be a srpriz for them to no we hav mād âthoritativ thouzandz ov simplifid spelings whil tha hav bin slēping. We hav indūst the Guvrnment itself to spel betr. With our asistans, the Educashunal Department frst simplifid the speling ov a fū jeographical nāms, then of meni postofisez, and now ov hundredz ov wrdz in cemistri. Tāk a fu ov the last az samplz:

Sulfur, sulfuret, sulfuric, sulfurus, etc.; chlorid, iodid, hydrid, oxid, hydroxid, sulfid, arnid, murexid, etc; chlorin, bromin, amin, anilin, crystallin, glycerin, morphin, quinin, vanillin, alloxantin, absinthin, emulsin, caffen, cocaine, etc.; glycol, phenol, cresol, thymol, glycerol, quinol, etc.; acetyl, amyl, cerotyl, cetyl, ethyl, etc. Thēz are ūzd in al Guvrnmental publicashunz, and ar graduali being adopted bi publishrz ov bucs and magazēnz. The *Cosmos* and the ITEMZ OF INTEREST hav adopted them without creating eni shoc.

Our Government haz gon farthr than this. Without mācing eni ado about it, and even without it being jenerali nōn, it haz pād ten thousand dolrz a yēr to promōte pūr fonetics.

We hav brāvd ridicūl, but attracted multitudz ov convrts, til our reform embrasez nērli âl the grāt profesrz and educatrz ov civili-zashun. Ov cōrs we ar not spēcing ov the presīs mōd we are hēr using, but ov pūr fonetics.

The prezent yēr will probabli se a grātr forwrd movment than evr befōr realīzd. Last Jūn thar waz a conferens ov âthrz and educatrz at Columbia Colej, which resolvd itself into *The Orthographic Union*, that in the fāl wil begin an agresiv campān.

Anuthr movment haz bin ināgurated bī Func and Wagnalz, ov Nū Yorc, âthrz and publishrz ov meni bucs, including the grāt *Standrd Dicshunari*. Thēz jentlmen hav âlredi comenst thar wrc bī sending out the foloing sruclz:

"Dēr Sr—Undr the advis ov Dr. March, and several uthr prominent reformrz, we hav had set up in tīp the enclosz list ov the reform spelingz ov wrdz selected from the list recomended bī

the American Filolojical Asosiashun and the Speling Reform Asosiashun.

"We ar wiling to intrqdūs at wuns thēz formz in our fōr periodicals: (1) *Literari Dijest*; (2) *The Homiletic Revū*; (3) *The Mishunari Revū ov the Wrld*; (4) *The Vois*; also, in al nū bucs hērafstr publisht bī us, and also in our corespondens, provided a rezunabl numbr ov othr periodicalz and rītrz and biznes men wil adopt the sām, so az to help brāc the fōrs ov the critizism that mā opōz. We hav introdust alredi a numbr ov thēz simplr formz in our publicasunz; az tho, catalog, program. The *Nū Yorc Independent* haz bin uzing for a long tīm quit a numbr ov thēz simplr formz. It iz belēvd that this entīr list can be uzd bī printrz without shocing the public overmuch. Aftr the public get uzd to thēz formz, anuthr step in advans can be tāen. This iz a reform in which we belēv a grātr spēd will be secūrd bī mācing hāst slōli; yet we shud be shūr that the progres be not slōr than iz reali nesesari."*

Then folōz a list ov the wrdz for which we hav not room.

A larj numbr ov editrz, publishrz, profesrz, tēchrz and biznes men hav alredi responded favorabli.

A dentist advertised for a boy of all work. Among the boys applying was a smart boy with a cigaret in his mouth. Though the professional man himself smoked, he wanted no boy around him with such a habit.

Another was asked his age.

"Fifteen, sir," was his reply.

"You lie, sir," said our friend.

"Well, I am thirteen."

"I want no liar about me," said the gentleman, with dignity. "If you will lie about your age, you will lie about other things." And yet that gentleman lied about his business, and lied to his patients, and thought it to his advantage.

Another older boy smelt of stale beer. Of course, he was rejected; though the dentist's own breath was charged with it.

Another, a mere lad, visited the billiard saloon. That was no

*Ov cors, the spelng in this quotashun iz our ūn.

boy for him, though he played billiards himself to the neglect of his business and his family.

One boy came in cursing the boy in front of him, because he could not pass him. Now, our dentist often used profane language, and sought by any unfair means to pass his competitor, yet that boy was black-balled at first sight.

As with boys, so with men. We are more frequently judged by our weak point than our strong parts; and he that is wise will not indulge in "little sins."

TALK vs. WORK.

When I hear some men talk, and read an essay, and lead in debate, and speak with such intelligence in conversation, and actually show their skill in demonstration, I think, what fine workmen they must be. But when I come to see their work, I find that we are all fallible; yes, we are really human, frail, blundering creatures. I am glad they write and speak so well, and know so much, and that much of it is practical and useful, as well as theoretical; but I sometimes think there are those listening who could do better work, though they cannot express themselves as well.

Then, too, there are those who become so wrapped up in one idea. They harp on it so incessantly, and magnify it so persistently, and throw it into our face so unsparingly, that I sometimes wonder if they would not appear better talking, once in a while, on something else. I don't like to feel as though I knew just what a man is going to say before he opens his mouth, and that I have had it so often I want to go to sleep till he is through. It makes me tired.

TO RESTORE CARDIAC ACTION SUSPENDED DURING CHLOROFORM ANESTHESIA.—In apparent death from chloroform let the respiration take care of itself while you make quick, firm pressure with the hands immediately over the heart, repeating at the rate of 120 times per minute. This forces the heart to contract, in many cases gradually restoring its function.

HINTS.

For profuse sweating, a physician in the *Medical Era* recommends ten-drop doses, four times daily, of dilute phosphoric acid.

* * *

ASBESTOS CYLINDER.—The cupped ends are admirably adapted for soldering small articles, such as gold crowns.

* * *

Sir Edwin Saunders is now the dentist to Her Majesty, the Queen of Great Britain.

* * *

A Dexter, Mich., woman got so much faith in faith cures that she threw away her false teeth, expecting her natural teeth to grow in again. She waited six months, and now has neither faith nor teeth.

* * *

DILUTE NITRIC ACID INTERNALLY FOR BOILS AND CARBUNCLES.—Dr. W. Towns, Fond du Lac., Wis., in the *Medical Brief*, recommends a course of dilute nitric acid for these troublesome affections. The best results will be secured if the remedy is continued for six or eight weeks.

* * *

Parlor flowers are not always the most desirable. A few may be beautiful but they are delicate and easily fade. Those in the garden have greater fragrance, freshness and sweetness, and I have seen some lovely ones wild. Even in the barnyard may be some with rich tints and lovely form. Never mind so much where a flower grows, if it pleases you. In the lowliest walks of life I have seen characters strong, warm and beautiful. With culture and better surroundings they might be ornaments anywhere.

* * *

The easiest and cheapest cement to prepare for uniting broken edges of glass and china is made by taking two ounces of pulverized white gum shellac and half an ounce of gum mastic. Soak them together in a couple of ounces of sulfuric ether, and add half a pint of alcohol. After the whole is dissolved, the preparation is ready for use. You heat the edges of the article to be mended, put on the cement with a brush, hold firmly till the cement has set, lay the article away for a week, and it will break anywhere else than in the mended place.

HYGIENE OF THE RESPIRATORY GATES.—The following rules of general hygiene, which are useful at all times for the preservation of the health of the nose, mouth and throat, are given in an article on diphtheria in the *New York Polyclinic*.

As prophylactic means to be considered: (1) Care for cleansing, keeping dry, sufficient ventilation and lighting of the dwelling; (2) careful cleansing of the mouth and nose, gargling with weak solutions of common salt and carbonate of soda, thorough brushing of the teeth, extraction of bad teeth, attention to the deeper cavities of the tonsils, and removal of hypertropied tonsils; (3) cold douching of the throat in times of diphtheria prevalence.

* * *

BEVELING CAVITIES.—Dr. Wedelstaedt claims that cavities prepared in the usual way, with the margins beveled and filled carefully, are the ones that do not leak. In almost every case cavities to be filled with amalgam are left with plain, strong walls. Of twenty-seven experiments, eleven, so far as he could determine, were very marked failures in using different kinds of amalgam. In each case he makes two cavities for the same amalgam and of the same mixture, one with straight sides, not beveled, and the other with the margins beveled, and in only one block in which he had quite a number of fillings did the beveled cavity leak, while in nearly every instance the others did leak.

* * *

A dignified bearing is respected, but too much familiarity is contemptible; a natural simplicity is admired, but maudlin sentimentality is disgusting; genuine sympathy is endearing, but officious intermeddling is resented. It requires greater wisdom to know our place and keep it, before our patients, than to preside at a public gathering; it shows greater discretion to say the right thing at the right time, in the right way, under ordinary circumstances, than to be eloquent before an enthusiastic audience; it is better to do the common duties of the hour well, than to do some great thing out of time and out of place. It should therefore be the height of our ambition to be in our proper place, doing our work with faithfulness and fidelity.

* * *

Dr. W. S. Elliott sends us the following clipping: A dentist of native antecedents (Japan), sends out the following: "Notice.—Our tooth is a very important organ for human life and countenance as you know, therefore when it is attacked by disease or injury, artificial tooth is also very useful."

FOR OUR PATIENTS.

THE MORNING VISIT.

Oliver Wendell Holmes.

A sick man's chamber, though it often boast
The grateful presence of a literal toast,
Can hardly claim amidst its varied wealth
The right, unchallenged, to propose a health.
Yet though its tenant is denied the feast,
Friendship must launch his sentiment at least,
As 'prisoned damsels locked from lover's lips
Toss them a kiss from off their finger tips.

The morning visit; not till sickness falls
In the charmed circle of your own safe walls,
Till the fever's throb, and pain's relentless rack,
Stretch you all helpless on your aching back—
Not till you play the patient in your turn
The morning visit's mystery you learn.
'Tis a small matter in your neighbor's case
To charge your fee for showing him your face;
You skip upstairs, inquire, inspect and touch,
Prescribe, take leave, and off to twenty such.
But when, at last, by Fate's transferred decree,
The visitor becomes the visitee—
Oh, then indeed it pulls another string,
Your ox is gored, and that's another thing.
Your friend is sick—phlegmatic as a Turk
You write your recipe and let it work;
Not yours to stand the shiver and the frown
(And sometimes worse) with which your draught goes down.
Calm as a clock, your knowing hand directs,
"Rhei jalapæ—ana grana sex,"
Or traces on some tender missive's back,
"Scrupulos duos—pulveres ipecac,"
And leaves your patient to his pains and gripes,
Cool as a sportsman banging at his snipes.
But change the time, the person, and the place,
And be yourself the "interesting case,"
You'll gain some knowledge which it's well to learn—
In future practice it may serve your turn.
Leeches, for instance (pleasing creatures, quite)—
Try them, and, bless you! don't you find they bite?
You raise a blister for the slightest cause;
But be yourself the great sublime it draws,
And, trust my statement, you will not deny
The worst of draughtsmen is the Spanish fly.

It's mighty easy ordering when you please
"Infusum sennæ—capiat uncias tres."
It's mighty different when you guzzle down
Your own three ounces of the liquid brown.
"Pilulae"—"pulveres"—pleasant sounds enough,
When other jaws receive the shocking stuff;
But, oh, what flattery can disguise the groan
That meets the gulp that sends it through your own?
Be gentle, then; though Art's inspiring rules
Give you the handling of her sharpest tools,
Use them not rashly—sickness is enough.
Be always "ready"—but be never "rough."
Of all the ills that suffering man endures,
The largest fraction liberal Nature cures;
Of those remaining 'tis the smallest part
Yields to the efforts of judicious Art.
But simple kindness—kneeling by the bed
To shift the pillow for the sick man's head,
To give the draught that cools the lips that burn,
To fan the brow, the weary frame to turn—
Kindness untutored by our grave M.D.s.,
But Nature's graduate, whom she schools to please—
Wins back more sufferers with her voice and smile
Than all the trumpery in the druggist's pile.
Once more—be quiet coming up the stair;
Don't be a plantigrade—a human bear—
But stealing softly on the silent toe
Reach the sick chamber, ere you're heard below;
Whatever changes there may meet your eyes,
Let not your looks proclaim the least surprise,
It's not your business by your face to show
All that your patient doesn't wish to know.
Nay—use your optics with considerate care,
And don't abuse your privilege to stare.
But if your eyes should probe him overmuch,
Beware still further how you rudely touch;
Don't clutch his carpus in your icy fist,
But warm your fingers ere you take the wrist.
If the poor victim's needs must be percussed,
Don't make an anvil of your patient's bust.
Doctors exist, within a hundred miles,
Who thump a thorax as they'd hammer piles.
If you must listen to his doubtful chest,
Catch the essentials and ignore the rest.
Spare him—the sufferer wants of you and art
A track to steer by—not a finished chart.
So of your questions—don't, in mercy, try
To pump your patient absolutely dry.
He's not a mollusk squirming in a dish;
You're not Agassiz—and he's not a fish.
And last, not least, in each perplexing case,

Learn the sweet magic of a cheerful face,
Not always smiling—but at least serene;
When grief and anguish cloud the anxious scene,
Each look, each movement, every word and tone
Should tell the patient you are all his own.
Not the mere artist—purchased to attend—
But the warm, ready, self-forgetting friend,
Whose genial visit in itself combines
The best of tonics, cordials, anodynes.
Such is the visit that from day to day
Sheds o'er my chambers its benignant ray.
I give him health who never cared to claim
Her babbling homage from the tongue of Fame.
Unmoved by praise, he stands by all confessed
The truest, noblest, wisest, kindest, best.

DESERVED PROMOTION.

Hon. Chauncey M. Depew tells the story of his visit to the Mechanical Department of Cornell University. He found at the head of it Prof. Morris, who claimed him as a superior officer, giving as a reason that he was an old-time worker on the New York Central Railroad.

"How did you get here?" asked Depew.

"I fired on the New York Central. I stood on the footboard as an engineer on the Central. While a locomotive engineer I made up my mind to get an education. I studied at night and fitted myself for Union College, running all the time with my locomotive. I procured books and attended as far as possible the lectures and recitations. I kept up with my class, and on the day of graduation I left my locomotive, washed up, put on the gown and cap, delivered my thesis, and received my diploma, put the gown and cap in the closet, put on my working shirt, got on my engine, and made my usual run that day."

"Then," said Depew, "I knew how he became Prof. Morris."

That spirit will cause a man to rise in any calling. It is ambition, but it is ambition wisely directed, aiming not at the goal—for such an ambition produces envy, scheming, discontent, and weakness—but bravely and cheerily aiming at one's self, seeking to make one's self fitted for higher work. When this is accomplished the opportunity for higher work is sure to come.

NOTICES.

THE COLORADO STATE DENTAL ASSOCIATION.

The Colorado State Dental Association held its annual session in Denver, June 18th to 21st. It was a very interesting session, with instructive papers, which brought out considerable discussion, and all felt they had been benefited. The attendance was very good. Dr. McMillen, of Kansas City, was present and gave some very interesting clinics. The following officers were elected: President, H. A. Fynn, Denver; First Vice-President, F. C. Chamberlain, Colorado Springs; Second Vice-President, J. H. Parsons, Boulder; Recording Secretary, A. L. Whitney, Denver; Corresponding Secretary, A. H. Sawins, Denver; Treasurer, William Smedley, Denver. The following delegates were elected to attend the American Dental Association, at Asbury Park, N. J.: J. M. Normann, Sarah May Townsend, C. F. Dodge, J. N. Chipley, J. H. Parsons, J. S. Donaldson, M. A. Bartelson, William Smedley, P. T. Smith, H. A. Fynn, R. B. Weiser. The Association adjourned to meet in Denver, June, 1896. *Dr. Sarah May Townsend.*

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THE WORLD'S HISTORY AND REVIEW OF DENTISTRY, by Dr. Herman Lennmalm, is quite a complete synopsis of dentistry in history and present status. Such books as this should be in every dentist's library. It gives a brief statement of dentistry in every country, with the number of dentists and dental laws and schools.

BROOK FARM, HISTORIC AND PERSONAL, by Dr. John T. Codman, Boston, Arena Publishing Co.

This is a history of a peculiar phase of social, associated and coöperative life, as attempted by "the Brook farmers," or, as they are sometimes called, Fourierites, though this particular enterprise was started independent of the Frenchman's plan of communistic interest. It was largely the product of the brain of George Ripley, a Unitarian preacher, assisted both in its conception and formation by some eminent men of the early forty's, such as Nathaniel Hawthorne, Geo. P. Bradford, J. G. Dwight, Charles A. Dana, Geo. William Curtis, James T. Field, Richard F. Fuller, and William Henry Channing, eminent writers, philosophers and idealists who promoted the enterprise.

But, like many another "scheme of life" that the brain perfects, it proved chimerical and impractical in life's actualities. Yet, in these days of Populistic theories and Socialistic problems this book should have many readers.